ENGINEERING NEWS-RECORD

California's Womack takes on AASHO presidency p.76

A McGRAW HILL PUBLICA

STEVENS RICE GS N
UNIV MICROFILMS INC EDIT
313 N FIRST ST
ANN ARBOR MICH C 4-

from the
FABULOUS 40
comes another answer
to the right machine
for your work
P&H

faster swings...15% higher output with the Magnetorque-equipped 1025A

...$12,000 worth of bonus extras come as standard equipment on this 3½-yd. P&H

This big P&H 1025A, like all shovels, swings two times for every other work motion it performs. This important work motion is one place you get a big bonus with the 1025A, because it gives you the fastest swing acceleration and deceleration in the 3½ yd. class.

Magnetorque swingers are the reason. With them you get up to 25% faster swings and an average of 15% more production every day. You can't get Magnetorque on any other make. If you could, it would cost you at least $5,000.

Magnetorque is a patented P&H electro-magnetic system—uses magnetic force instead of friction clutches to control swings. No adjustments. No linings to replace. Maintenance so close to zero you can measure it in pennies—for the life of the machine!

It tops a long list of P&H bonus features built into the 1025A. Another important bonus is the heavy duty shovel front, borrowed from famous P&H Mining Shovels. It's the most rugged design on the market, with straddle-type sticks of T-1 steel and integral torsion box. P&H positive chain crowd with fast planetary retract assures you of additional bonus value.

Call your P&H dealer for details on these and other bonus extras that would cost you $12,000 extra on other machines. Or, write Harnischfeger, 4400 West National Avenue, Milwaukee 46, Wisconsin, for descriptive literature.

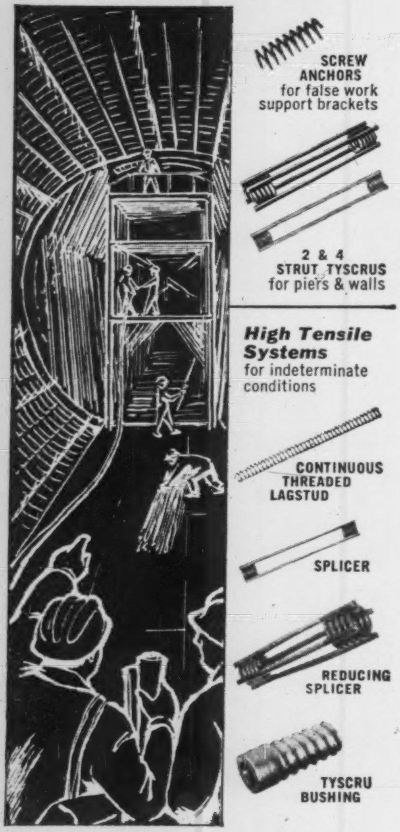
HARNISCHFEGER P&H
Milwaukee 46, Wisconsin
CONSTRUCTION & MINING DIVISION

The 3½ yd. P&H 1025A, a special favorite as a hoe among large sewer contractors. P&H sturdy construction, long reach, fast work cycles mean more footage trenched each day.

How safe? Let The Travelers safety experts tell you. They'll study safety problems on your jobs to help keep accidents to a minimum and to help keep *you* out of lawsuits. When someone does get hurt, Travelers handles Workmen's Compensation and Public Liability claims for you—swiftly! You can also get Bid Bonds, Builders' Risk Insurance, Contractors' Equipment Floaters—in fact, practically any kind of business insurance you need—all from The Travelers. See your Travelers man.

THE TRAVELERS Insurance Companies HARTFORD 15, CONNECTICUT

Richmond


SCREW ANCHORS for false work support brackets
2 & 4 STRUT TYSCRUS for piers & walls
High Tensile Systems for indeterminate conditions
CONTINUOUS THREADED LAGSTUD
SPLICER
REDUCING SPLICER
TYSCRU BUSHING

Most Tunnel Contractors use *Richmond* Products

In tunnel work, where time is money, contractors have come to rely on Richmond to help them save both. Richmond-engineered products are often a major factor in the profit picture.

You buy 50 years of experience in the development of products for concrete construction when you specify "Richmond". Bulletin No. 9 of our NEW Handbook describes our full line of products for tunnel forming. Write for your copy or help with any specific concreting problem. There are more than 25 Richmond Field Engineers, in addition to a service network of more than 500 Richmond Dealers, always ready to help you.

1911-1961 50 YEARS OF PROGRESS

Richmond
SCREW ANCHOR CO., INC.
INSIST ON RICHMOND
... AND BE SURE IT'S RICHMOND

MAIN OFFICE: 816-838 LIBERTY AVE., BROOKLYN 8, N. Y.
SALES OFFICES, PLANTS & WAREHOUSES: FT. WORTH, TEX. ATLANTA, GA. • LAUREL, MD. • ST. JOSEPH, MO. • WALTHAM, MASS. IN CANADA: ACROW-RICHMOND, ORANGEVILLE, ONT.

ENGINEERING NEWS-RECORD
EIGHTY SEVENTH YEAR OF PUBLICATION
A McGraw-Hill Publication • 330 West 42nd Street, New York 36, N.Y. • LOngacre 4-3000

Editor, Waldo G. Bowman

Managing Editor, **Arthur J. Fox, Jr.**

Senior Editors, **Frederick S. Merritt, James B. Sullivan, Leo J. Ritter, Jr.**

Assistant Managing Editor, **Joseph F. Wilkinson**

Transportation—Roads, Bridges, Railways, Airports, Pipelines, Ports
Leo J. Ritter, Jr., Edward M. Young, Jr.

Buildings—Commercial, Industrial, Housing; Codes, Specifications
Frederick S. Merritt, C. W. Griffin, Jr., Ronald G. Burns, Peter M. Green

Water—Sanitation, Water Supply, River Control, Power, Irrigation
James B. Sullivan, William W. Jacobus, Jr., Robert M. Echols

Business—Management, Labor, Finance, Markets, Contracts, Economics
Robert J. Stinson, Charles J. Harding

Regional Editors
J. Roland Carr, *Chicago, 645 N. Michigan Ave.* (***MOhawk* 4-5800**)
Martha Alexander, *Staff Assistant*

Lauress L. Wise, *San Francisco, 255 California St.* (***DOuglas* 2-4600**)
Anne Garcia, *Staff Assistant*

Copy—Presentation, Production
Joseph F. Wilkinson
Harry W. Jensen, Robert G. Young, *Presentation*
Nancy Parkes, John C. Greenough, E. Allen Soast, *Production*
Mary Anne Donohue, *Correspondents, Bureaus*

Statistics, Prices, Costs—Business News
Elsie Eaves, *Manager*
Julia Mahoney, *Construction Reports*
Mildred Wetzel, Marian Sciorra, Marie Moravsik
Eleanor Queret, Francine Todisco, Helene Wahlers, Arlene Spielman
James Webber. Ruth Carlson, *Economics*
William P. Larkin, T. M. Crosio, *Prices, Wages, Indexes*
Evelyn Huber, Edith Ostwald, Clara Szabados, *Statistics*
D. Arlene Ricker, *Unit Prices*

Editorial Research and Indexing
Eva Gierat, Rene Hay, Jane Jacobson, Laine Timonen

Consulting Editors: **Van Tuyl Boughton, Nathan A. Bowers**

Advertising Sales Manager: **Donald S. Robertson**

Circulation Manager: **Edward F. Bressler**

Washington Bureau, National Press Bldg., Washington 4, D. C., (***REpublic* 7-6630**), George B. Bryant, Jr., Chief, Alan Adams, Glen Bayless, Herbert Cheshire, Boyd France, Charles Gardner. Arthur Hermann, Donald Loomis, Daniel McCrary. Gladys Montgomery, Arthur Moore, Burkey Musselman, Seth Payne, Morton Reichek, Caroline Robertson, David Secrest, Richard Smith, Vincent Smith, Harry Vandernoot, Peter Weaver

Domestic News-Bureaus: Atlanta—1375 Peachtree St., B. E. Barnes, Chief, Frances Ridgeway; **Chicago—**645 N. Michigan Ave., Stewart Ramsey, Chief, Bruce Cross, Eric Aiken; **Cleveland—**55 Public Square, Arthur Zimmerman, Chief, Violet Forsha; **Dallas—**2100 Vaughn Bldg., Marvin Reid, Chief, Mary Lorraine Smith, Mae Brown; **Detroit—**856 Penobscot Bldg., Donald MacDonald, Chief, Wesley Perry, Jr., Del Yannatta; **Los Angeles—**1125 W. 6th St., Kemp Anderson, Jr., Chief, Carl Havighorst, Michael Murphy, Marvin Petal, Bill Wallace, Mary Williams, Barbara Lamb; **San Francisco—**255 California St., Jenness Keene, Chief, Donald Winston, Marion Tracy; **Seattle—**6040 Fifth Ave., N.E., Ray Bloomberg.

Foreign News Bureaus: London—John Shinn; **Paris—**Robert Farrell; **Mexico City—**John Pearson; **Bonn—**Pete Forbath; **Tokyo—**Sol Sanders; **Rio de Janeiro—**Leslie Warren; **Moscow—**Ernest Conine.

Correspondents: In 70 principal U. S. cities and 70 cities throughout the world.
Director of News Bureaus: John Wilhelm; **Managing Editor, Margaret Ralston.**
McGraw-Hill Economics Department: Douglas Greenwald, Manager.

Publisher, Robert F. Boger

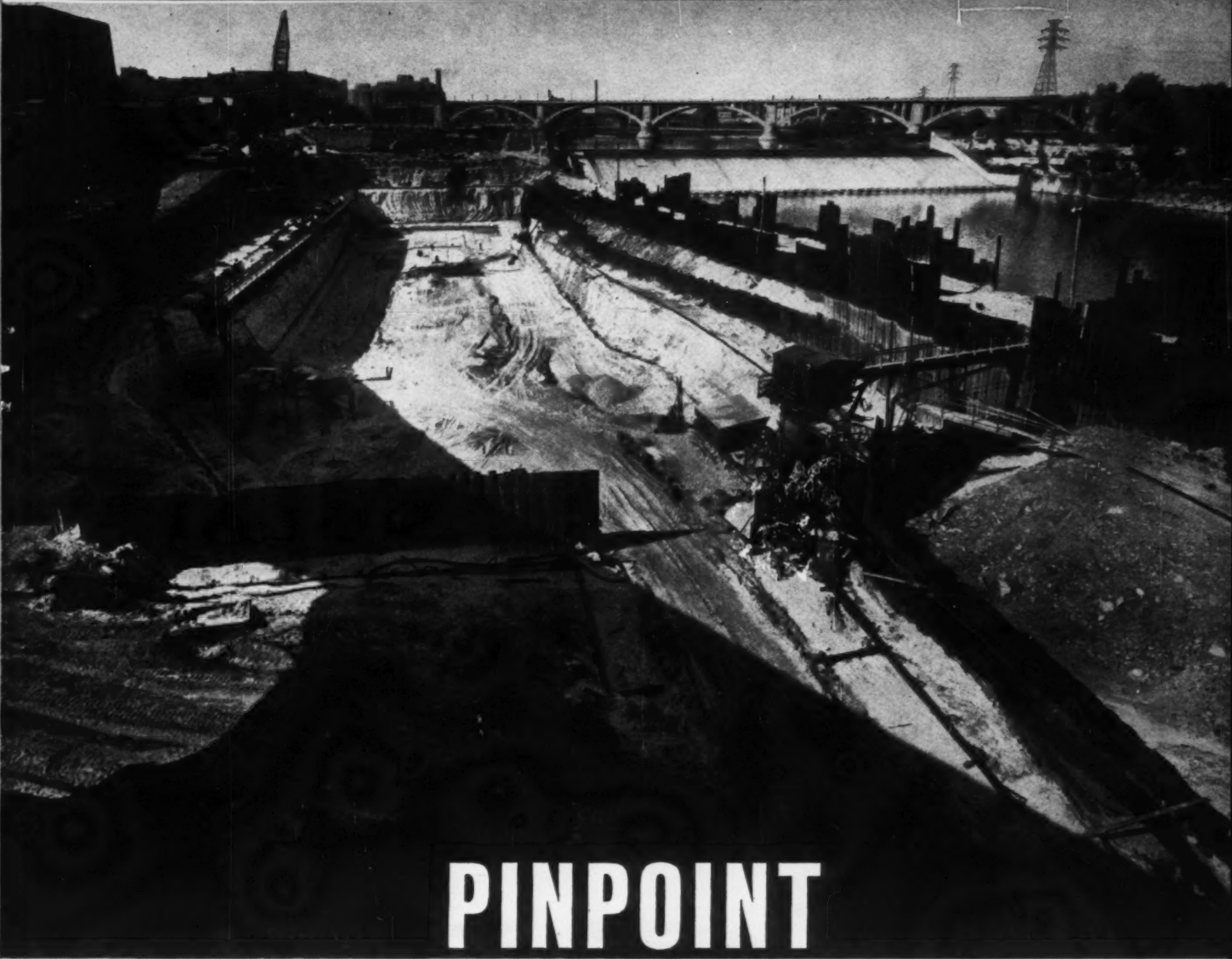
MEMBER

ENGINEERING NEWS-RECORD Vol. 167, No. 16, OCTOBER 19, 1961

Published weekly by McGraw-Hill Publishing Company, James H. McGraw (1860-1948), Founder. Printed at Albany 1, N. Y. See panel below for directions regarding subscriptions or change in address. **Executive, Editorial, Advertising and Circulation Offices: McGraw-Hill Building, 330 W. 42nd St., New York 36, N. Y.** OFFICERS OF THE PUBLICATIONS DIVISION: Nelson L. Bond, President; Shelton Fisher, Wallace F. Traendly, Senior Vice Presidents; John R. Callaham, Vice President and Editorial Director; Joseph H. Allen, Vice President and Director of Advertising Sales; A. R. Venezian, Vice President and Circulation Coordinator; Daniel F. Crowley, Vice President and Controller. OFFICERS OF THE CORPORATION: Donald C. McGraw, President; Hugh J. Kelly, Harry L. Waddell, Executive Vice Presidents; L. Keith Goodrich, Executive Vice President and Treasurer; John J. Cooke, Vice President and Secretary. **Subscriptions are solicited only from persons with identifiable commercial or professional interests in construction and building. Position and company connection must be indicated on subscription orders. Publisher reserves the right to refuse unqualified subscription.** United States subscription rate for individuals in the field of this publication $6.00 per year, single copies 50 cents; foreign $20 per year, payable in advance. Second-Class mail postage paid at Albany, N. Y. Printed in U.S.A. Title® registered in U.S. Patent Office. ©Copyright 1961 by McGraw-Hill Publishing Co., Inc. All rights Reserved. **UNCONDITIONAL GUARANTEE:** Our primary aim is to provide subscribers with a useful and valuable publication. Your comments and suggestions for improvements are encouraged and will be most welcome. The publisher, upon written request, agrees to refund the part of the subscription price applying to the remaining unfilled portion of the subscription—if editorial service is unsatisfactory.

SUBSCRIPTIONS: Send subscription correspondence and change of address to Fulfillment Manager, ENGINEERING NEWS-RECORD, 330 W. 42nd St., New York 36, N. Y. Subscribers should notify, publisher *promptly of any change of address, giving old as well as new address, and including postal zone number,* if any. If possible enclose an address label from a recent issue of the magazine. Please allow one month for change to become effective.

Postmaster: Please send Form 3579 to Fulfillment Manager, Engineering News-Record, 330 W. 42nd St., New York 36, N. Y.



Contractor: Al Johnson Const. Co., Minneapolis, Minn.

61-3

PINPOINT WATER CONTROL

There was a river next door to this excavation, the mighty Mississippi—but you'd never have known it by looking for ground water or seepage. Working in the difficult medium of soft, friable St. Peter's formation, a Stang engineered and designed dewatering system kept the entire working area of this exacting project water-free, the vertical slopes strong and firm. Involving wellpoints, sumping, and jetting operations, the efficient Stang dewatering system gave the contractor complete, flexible water control, in spite of the immediately adjacent river. Solutions to dewatering problems such as this are the specialty of Stang; through proper engineering analysis and design, Stang dewatering specialists continually save contractors time, money and trouble. Call Stang—there can be a qualified dewatering engineer on your jobsite tomorrow.

This project, the upper lock of the St. Anthony Falls Locks in Minneapolis, Minnesota, is only one of many interesting dewatering jobs described in the new 52-page Stang general catalog. Write for your free copy now.

JOHN W. **STANG** CORPORATION

8221 ATLANTIC AVENUE • BELL, CALIFORNIA • TACOMA • MINNEAPOLIS • OMAHA • TULSA • MOBILE • ST. PETERSBURG

ENGINEERS AND MANUFACTURERS OF DEWATERING EQUIPMENT, WELLPOINT AND PUMPING SYSTEMS • DEWATERING PLANNING • EQUIPMENT • SERVICE

Be kind to taxpayers. Reinforce

Civic pride. Driving comfort. Taxpayer satisfaction. All are reasons for making sure that your urban redevelopment plans start with smooth, long-lasting streets. Take a tip from the concrete toll roads in service today: over 95% are reinforced with welded wire fabric.

It's good business to build streets that last. First, if Federal or State aid pays initial cost, maintenance costs are up to you. Second, tax dollars don't stretch very far if maintenance costs are excessive. Third, maintenance costs are high unless you reinforce your pavement the most economical way: with USS American Welded Wire Fabric.

USS American Welded Wire Fabric delivers the tensile strength needed to control cracks due to variations in temperature, moisture, soil shifting and traffic loads. It distributes balanced design that protects edges and corners. By actual measurement, welded wire fabric's ability to control cracks adds 30% to the strength of the slab.

USS American Welded Wire Fabric is precision-made of cold-drawn, 60,000 psi min. yield strength wire, sized to your exact requirements, ready for immediate placement. For full information, write American Steel and Wire, Dept. 1288, Rockefeller Building, Cleveland 13, Ohio.

USS and American are registered trademarks **Innovators in Wire**

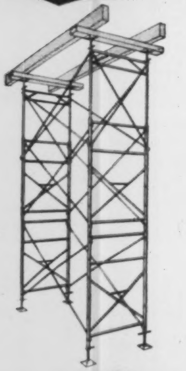
USS

American Steel and Wire
Division of
United States Steel

Columbia-Geneva Steel Division, San Francisco
Tennessee Coal and Iron Division, Fairfield, Ala.
United States Steel Export Company

America's new city streets with welded wire fabric.

SHORE "X" Pat Pend
the only
HEAVY DUTY
fully braced
"X" tendible
SHORE



SHORE "X" Pat Pend
COSTS { 10% to 20% less to buy
5% to 10% less to erect
GIVES { Easy adjustment to any height
10% to 40% more load
Now in use on 8 major bridge and heavy construction projects.
For details call UPton 0-2985 or write
SUPERIOR scaffold co.
5624 BANKFIELD AVE., CULVER CITY, CALIF.
TO: SUPERIOR SCAFFOLD CO.
5624 Bankfield Ave., Culver City, California
______ Please send data on SHORE "X" Scaffold.
______ Also include data on Tubular Steel Scaffold.
Name ______ Title
Company ______
Address ______
City ______ Zone ______ State ______

Reader Comment

Peace Corps Rates Support

SIR—Eugene Schreiber's article (ENR Sept. 21, p. 44) is one of the most accurately informative articles I have read in the past few months concerning the Peace Corps. It presents the Peace Corps, especially the Tanganyika Project, as a group of intelligent, hardworking, serious-minded young men interested in doing a job. They are far from being experts in their field but they are also far from being zealots out to cure all of the problems of the world. After my experience with them, I have much faith in these young men.

(Reader Davinroy helped teach the Tanganyika group at Texas Western College—Editor.)

My concern about this whole project is not with the men or the Peace Corps, but what appears from my vantage point to be a lack of interest by the engineering profession. Beginning with the organization of the project, through the selection of candidates and into the procurement of equipment and the carrying out of training, there seemed to be no continuous participation by qualified members of the engineering profession. I understand that some engineering assistance was offered and utilized, but the limited effort, as competent as it was, could provide but limited results. Better utilization of personnel on projects for which they were more qualified could have been achieved. Equipment problems and deficiencies could have been eliminated prior to commencement of training.

While conducting training in El Paso, I was disappointed that no individual or group of individuals called or visited the training site. One meeting with the local engineers gave several of the candidates opportunity to tell what they were doing and their reactions to it. Although we instructors were considered experts in our fields, we would have welcomed visiting engineers to observe, question and offer suggestions on any phase of the training. Prof. Russell Brinker had set up an excellent training schedule, but we were constantly attempting to improve it by giving the best and most of what we felt they needed for the job.

The men going to Tanganyika are not expert, highly qualified engineers. We could not make them such nor would they claim to be expert. But on their shoulders rides, not only the good name of themselves and the U. S., but also of U. S. engineering. Whether we believe in the projects of the Peace Corps or not, our reputation as engineers is being carried by these young men. We must all take an interest, an active interest, in this and future projects if the young men and the people for whom they are working are to achieve the greatest benefit. Encouraging qualified young men, becoming personally familiar with the projects and actively participating in such projects whenever possible are positive ways of achieving success for any future projects.

This project, I am convinced, will succeed. The men going are competent and willing to perform the work expected of them. It was my very great pleasure and privilege to work with this fine group of young men.

THOMAS B. DAVINROY
Institute of Transportation
and Traffic Engineering
University of California

Cement Is Good Now

SIR—Your editorial, Up-Grading Needed (ENR May 25, p. 92) advised ASTM Comittee C-1 at its June Meeting to "raise the quality of all cements." Committee C-1 presented its Annual Report to ASTM on June 30. The report recommended a new tentative specification for processing additions for use in the manufacture of portland cement and revisions in the methods for chemical analysis of cement, sampling cement, determining flexural strength of mortar and test for false set of cement in mortar.

The report also proposed revisions in specifications for portland cement, air-entraining portland cement, portland blast-furnace slag cement, air-entraining additions for use in manufacturing air-entraining portland cement, and others.

All these recommendations represent improvements in specifications and methods of testing. Their objective is greater assurance that cements will be of proper quality for the purposes for which they are purchased.

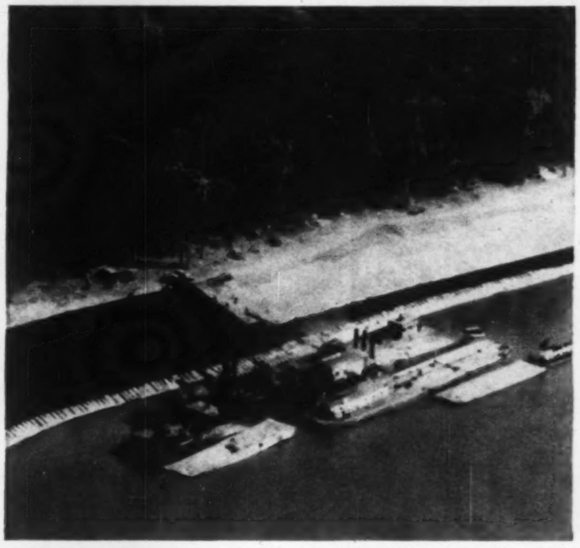
It is appreciated that in the space available to the writer of your editorial it was not possible to spell out explicitly what changes he believed should have been made by Committee C-1. I hope that such explicit suggestions will be provided for consideration by the committee.

The existing ASTM specifications for cements are C150-60, Portland Cement; C175-60, Air-Entraining Portland Cement; C205-60T, Portland Blast-Furnace Slag Cement; C340-58T, Portland-

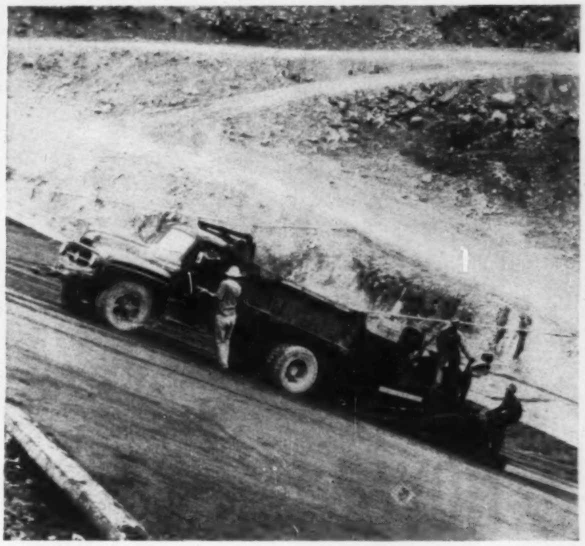
(Reader comment continued p. 12)

Engineering News-Record welcomes expression of opinions from its readers. Comment should be as brief as possible and pertinent to subjects of current construction importance. Letters should be addressed Editor, Engineering News-Record, 330 W. 42nd St., New York 36, N. Y.

ASPHALT-GROUTED stone jetty has successfully withstood hurricanes and high tides for 25 years.



ASPHALT BLANKET protects this Mississippi River levee from the ravages of "Old Man River."



ASPHALT-FACED, rock-filled dams provide low-cost construction, resist seepage and erosion.

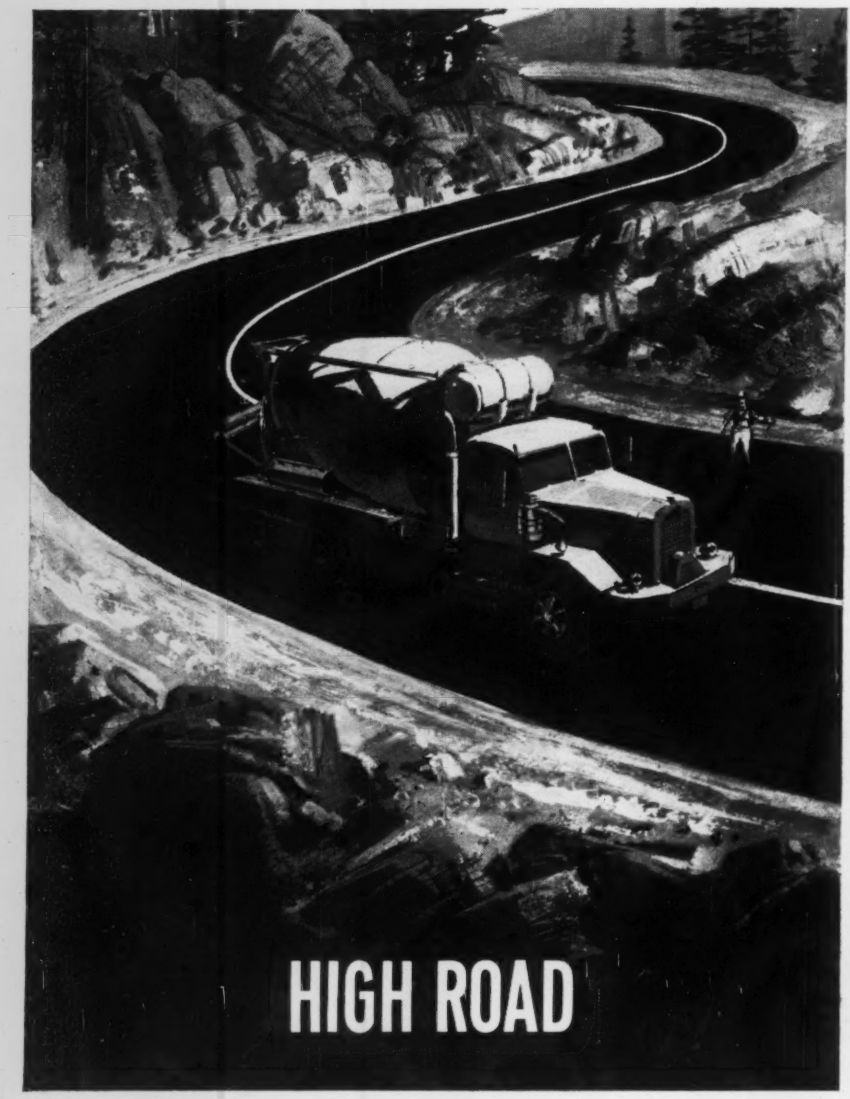
TAME TIDE OR TORRENT... *with economical asphalt from Esso!*

When Nebuchadnezzar built the Hanging Gardens of Babylon, he used asphalt to line the canals which brought water to that ancient wonder of the world. Today asphalt is still one of the most durable and economical materials known for water control.

Asphalt structures such as groins, jetties, and sea walls help protect our nation's shoreline from erosion by wind and wave. Asphalt-lined reservoirs prevent seepage loss of precious water. Asphalt paving protects dams, storm channels, and roadway drainage ditches.

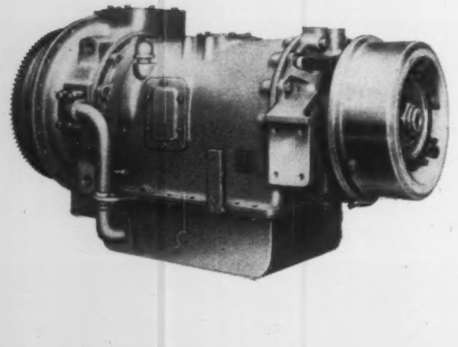
Esso refines asphalt in a wide range of grades for water-control and a variety of other purposes; delivers it from nine conveniently located supply points. For more information about this versatile material, or for expert technical assistance, write us at 15 West 51st Street, New York 19, New York.

HUMBLE OIL & REFINING COMPANY Esso



NOW A LIGHT-HEAVYWEIGHT TORQMATIC

Weighs only 985 lbs.—measures a scant

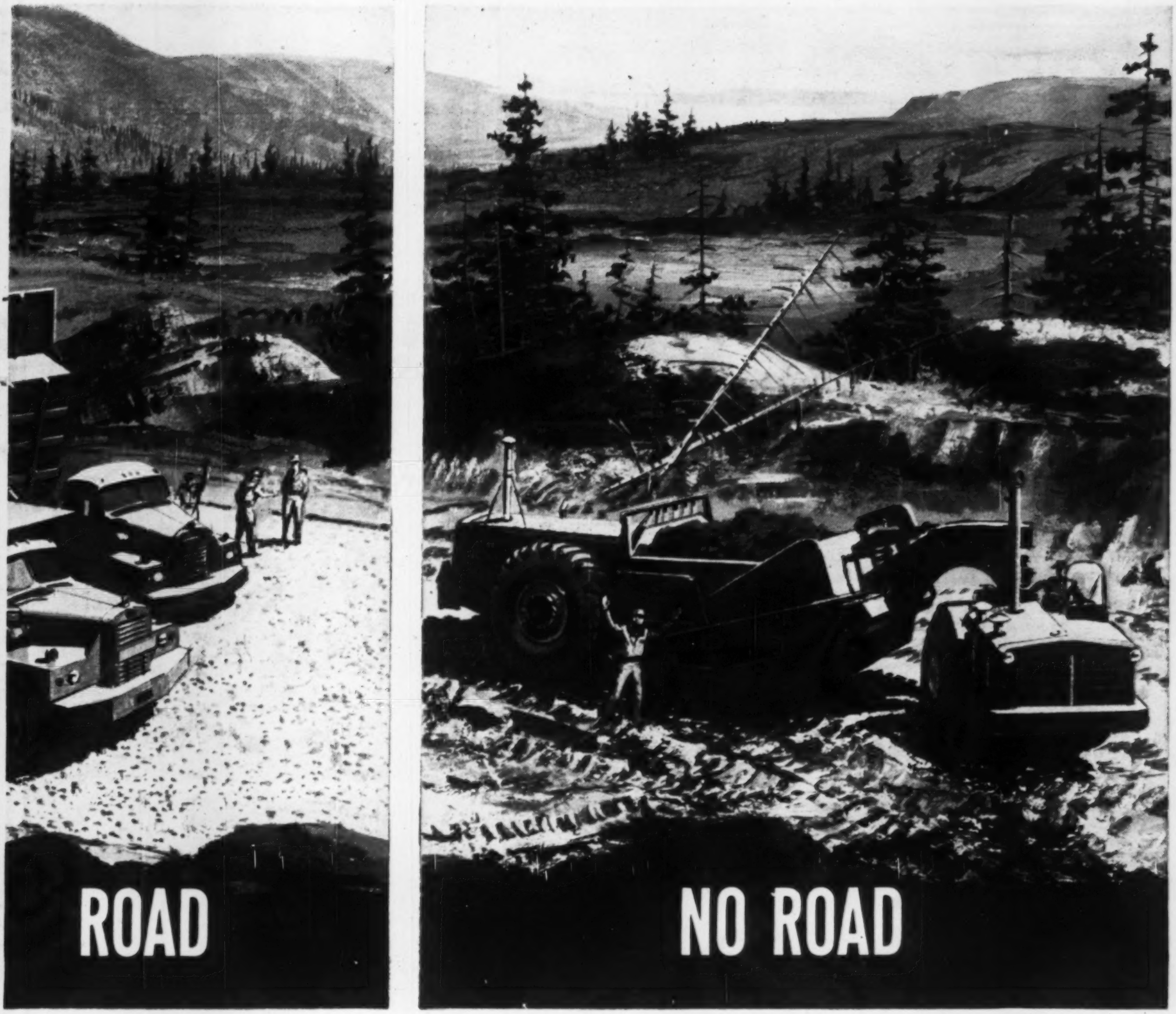


Now you can get all the savings of a power-shift hydraulic transmission in your 18-22 ton end dumps, 13-15 yard bottom dumps, 12-15 yard scrapers, big transit mixers and heavy-duty specialized equipment in a single lightweight, compact package.

The CLBT-4460 TORQMATIC DRIVE gives the driver complete control of the speed ranges throughout the work cycle, weighs only 985 lbs., measures only 40″.

With 6 speeds forward and 1 reverse, this converter-transmission team can be either remote- or direct-engine mounted. Lock-up clutch, hydraulic retarder, straight-through output and 1.42:1 step gear ratio are standard—options include four different PTO locations, transfer gear output, drum-type parking brake and 1.32:1 step gear ratio.

Want to know more about the CLBT-4460 for the crash trucks, fire trucks, snow plows, logging trucks and other equipment you're planning to buy or build? Mail the coupon today.



DRIVE THAT'S RIGHT FOR ALL THREE

40"...fits 200-300 h.p. equipment

ALLISON DIVISION OF GENERAL MOTORS
DEPT. NR-6 INDIANAPOLIS 6, INDIANA

Please send me the brochure describing the Allison CLBT-4460 TORQMATIC DRIVE.

Name________________

Title________________

Company________________

Address________________

City__________ Zone__________ State__________

POWER-SHIFT IS OUR BUSINESS

Allison TORQMATIC

TORQMATIC® DRIVES

THE WORLD'S MOST COMPLETE LINE OF HYDRAULIC DRIVES

Over 980 Models used by 108 Manufacturers in
100 to 525 H.P. Equipment.

Aligning Connectors

Backup Flanges

180° Returns

"Plug-R-Caps"

Tees

CUT process piping COSTS with PIPE®-MATE...

KNOWN tt VALUE

LIFESAVER IN PIPING

Industry's most versatile line of lightweight stainless steel pipe fittings and flanges

With the ever increasing use of low cost, lightweight stainless steel pipe in modern corrosion resistant process piping systems, has come the most logical preference for PIPE-MATE fittings and flanges. First, PIPE-MATE fittings provide a new versatility in piping fabrication that lets you choose the pipe-to-pipe and pipe-to-fitting joining method best suited to your job. Second, PIPE-MATE lightweight stainless steel fittings are available in every needed form and size from ½″ to 4″, in Schedules 5S and 10S.

PIPE-MATE fittings can be butt welded with either metallic arc or shielded inert gas welding techniques. Or, employing the PIPE-MATE aligning connector they can be fillet welded, brazed or silver soldered for permanent, leak-proof joints. PIPE-MATE aligning connectors eliminate costly misalignment errors, too. The entire piping system can be "pre-fitted" and adjusted for misalignment before a single joint is made up.

PIPE-MATE rolled-in flanged connections provide the perfect means for installing process piping systems when welding equipment is unavailable, when hazardous conditions dictate flameless fabrication, or when rapid system assembly and dis-assembly are required. PIPE-MATE rolled-in flanged joints are remarkably easy to make . . . no special skills or costly tools are needed. Extra long tangents on all PIPE-MATE fittings assure adequate flange clearance, and the rotatable flange makes bolt hole alignment easy.

Get all the facts today, and see how lightweight stainless steel piping and PIPE-MATE fittings can cut your process piping system costs. Write for Bulletin TT944-K-169. TUBE TURNS, Louisville 1, Kentucky.

"PIPE-MATE" and "tt"
T.M. Reg. U.S. Pat. Off.

TUBE TURNS

Division of **CHEMETRON** *Corporation*

Stub Ends

Concentric Reducers

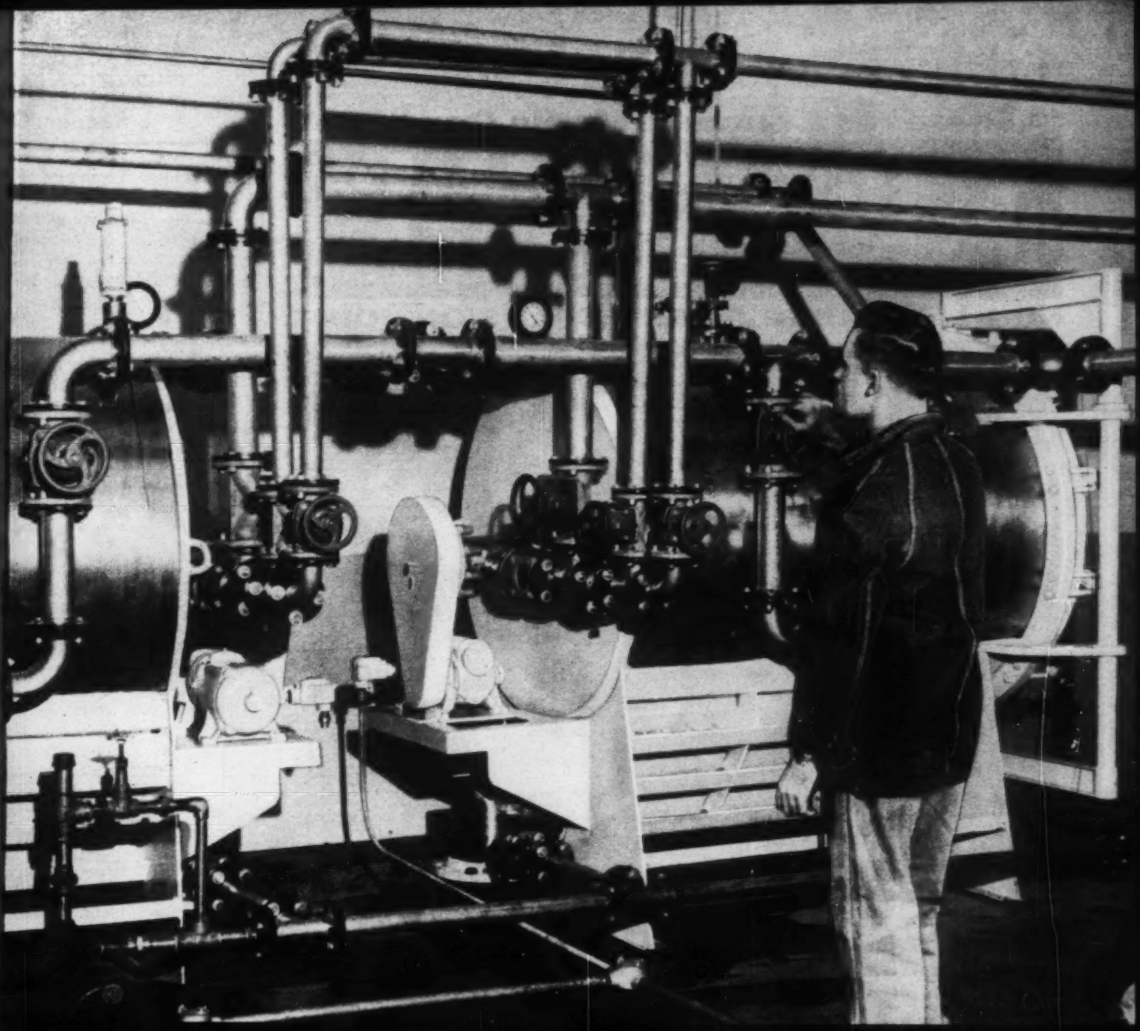
Crosses

Insert Flanges

90° Elbows

Eccentric Reducers

45° Elbows



Lightweight stainless steel process piping systems fabricated with PIPE-MATE rolled-in flanged connections cost less to install and save up to 50% in pipe costs, too.

for butt welding . . .

for fillet welding . . .

for rolled-in flanges

PIPE-MATE fittings are stocked by and sold exclusively through authorized Tube Turns Distributors

"Wherever Concrete Meets Concrete"

FLEXCELL

REG. U.S. PAT. OFF.

NON-EXTRUDING FIBER EXPANSION JOINT

Does the job best!

25 years of job-proved performance have made Flexcell Board "1st Choice Across America!" Resilient, yet tough, rigid, non-extruding... dimensionally stable. Water-resistant. Not affected by heat or cold. Economical, efficient, easy-to-use!

Your Flexcell Distributor is equipped to fabricate shapes and strips to your specifications. Call him, or write for samples!

ANOTHER CELOTEX PRODUCT

"Saves time, cuts waste"

says Columbus, Ohio Builder of North/South Freeway stretch. "We like the way Flexcell comes in right-and-ready shape and form," says J. A. Chapman, project manager for Visintine Construction Company. "We prefer Flexcell joint material for pavement and around curbings," he adds. "It comes cut-to-shape, accurately punched, ready to store for use as needed."

EXPANSION JOINT INSTITUTE

If it's "by CELOTEX" you get QUALITY... *plus!*

THE CELOTEX CORPORATION

120 SOUTH LA SALLE STREET • CHICAGO 3, ILLINOIS

Pozzolan Cement; C358-58, Slag Cement; C10-54, Natural Cement, and C91-60, Masonry Cement. Each of these seven specifications covers more than one type of cement.

A cement user has the opportunity to select from many different sets of requirements the one that will most satisfactorily cover the cement he needs. With the adoption of revisions to C150 and C175 presented by C-1 to ASTM on June 30, a cement user now has available 32 optional sets of cement specifications from which to select, within the provisions of these two specifications alone.

He may specify any of the five basic types of portland cement, with or without a limitation on alkali content; he may specify any of the first three types with or without an interground air-entraining agent and with or without a limitation on alkali content. For type II, he may, in addition, specify either a limit on heat of hydration or a limit on the sum of the calculated tricalcium silicate and tricalcium aluminate content. And for type III, he may, in addition, specify either of two limits on tricalcium aluminate content.

If none of these 32 choices is regarded as covering adequately the cement needed, the user then has choices among other cements, such as slag cement or natural cement for blending with portland cement. Or he may use blended cements, such as portland blast-furnace slag cement or portland-pozzolan cement.

The correctness of your statement that "a better product is needed for use in the great majority of ordinary construction jobs," is questionable. If, in some cases, better products were needed, I suggest that inadequacy of products actually used resulted from failure to select appropriate sets of requirements rather than from a lack of availability of appropriate requirements.

Should any cement user be unable to locate specifications covering cement appropriate to a given intended use, Committee C-1 urgently requests that he make the circumstances known to it. It offers assurance that requests will be fully considered.

Your editorial begins and ends with assertions relating to the need to increase the quality of cement; in between there is discussion of uniformity of cement. The assertions are undocumented and the discussion vague.

Properties of cements and concretes vary within batches and between batches. This is inevitable. The problem is to reduce variation to that most economically allowed for in design. This is a problem not only of cement requirements but of concrete technology, a problem of which Committee C-1 on Cement and Committee C-9 on Concrete and Concrete Aggregates are fully aware.

Your editorial implies that no im-

(*Reader Comment continued p. 16*)

PROVEN, LOW-COST WAY TO AVOID THIS

immediate protection against roadside erosion...

SOIL SAVER

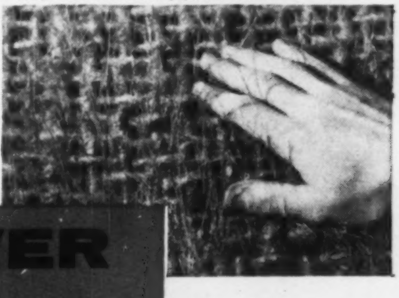
Each day, erosion from rain and water run-off cuts into the highway investment of every state. If you share in the responsibilities of highway planning, building and renewal, then erosion, its defeat and prevention, is your concern. You, of all people, should know about Soil Saver.

Soil Saver is a heavy jute mesh. It is simple as dirt, and almost as cheap! It costs, in fact, some 75% less than sod, and 1400% less than asphalt or concrete paving. Wind, water or growing grass cannot displace it. Many leading state highway design engineers across the nation now include it in their original specifications. They have seen how it protects seed and soil in critical areas until grasses take over.

Soil Saver belongs in your plans. Get the facts . . . write for full details to Dept. EN-101.

LUDLOW TEXTILE PRODUCTS
NEEDHAM HEIGHTS 94, MASS.
A Division of Ludlow Corporation

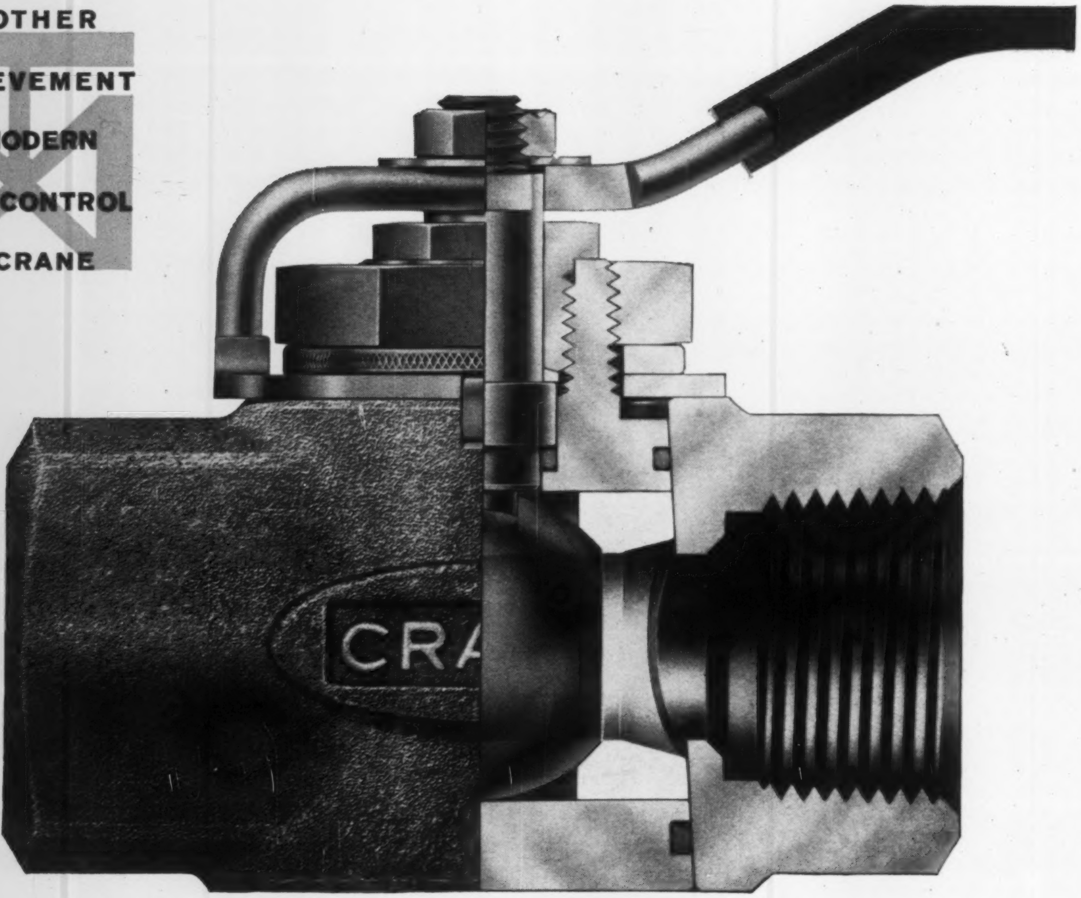
ABOVE: Soil Saver applied to critical center of steep grade median strip. **BELOW:** Stabilizing grass growing through Soil Saver heavy jute mesh.



Ludlow

SOIL SAVER
Heavy Jute Mesh
SIMPLE AS DIRT AND ALMOST AS CHEAP

ANOTHER
ACHIEVEMENT
IN MODERN
FLOW CONTROL
BY CRANE



this ball beats all!

CRANE BALL VALVES are engineered for superior flow control and minimum-maintenance operation. The secret of this valve's all-around outstanding performance is its beautifully simple, Crane-designed tapered cartridge containing all the working parts. While the valve body remains in line, acting as a pipe connection, the entire cartridge may be removed from the bottom, quickly and easily, for fast exchange or simple, low-cost maintenance.

Precision pre-loaded Teflon* seats assure bottle-tight closing in either direction with a quick, easy quarter turn of the bright, Crane orange insulated handle. The self-aligning, precision machined ball is polished and chrome-plated to reduce friction and wear on the self-cleaning seats. All steel parts are plated for corrosion resistance. Crane Ball Valves handle fluid, gas and air services from vacuum to 800 psi and temperatures from –40 to 400F. Available now from your Crane Distributor for prompt delivery—sizes from ¼″ to 2″, screwed ends, in bronze, carbon steel, and Type 316 Stainless.

*Registered DuPont trademark.

at the heart of home and industry

CRANE

valves
piping • electronic controls
plumbing • heating
air conditioning

Contact your Crane Distributor or write: Crane Co., Industrial Products Group, 4100 S. Kedzie Ave., Chicago 32, Ill., for illustrated brochure ADB 1001 with complete information on Crane Ball Valves. In Canada: Crane, Ltd., 1170 Beaver Hall Square, Montreal.

PLASTICS
DIVISION

NEW FRONTIER

LOCK JOINT LAUNCHES ITS PLASTICS DIVISION

To produce plastic pipe and protective coatings and linings for the transportation of sanitary and industrial wastes, and corrosive fluids, Lock Joint Pipe Company has established a Plastics Division through the acquisition of the following highly regarded companies in the plastics field:

ELECTRO-CHEMICAL ENGINEERING & MANUFACTURING CO.
EL-CHEM ENGINEERING & MANUFACTURING CO. (Canada)
Corrosion resistant coatings, films and foams.
CORROPLAST, INC.
P.V.C. pipes, sheets and shapes.
OSCAR DAVIS COMPANY, INC.
Plastic fittings, valves and special fabrications.

LOCK JOINT PIPE COMPANY
Established 1905
P. O. BOX 269, EAST ORANGE, N. J.

CONCRETE PRESSURE, SEWER, CULVERT & SUBAQUEOUS PIPE: PLASTIC PIPE, AND PROTECTIVE COATINGS

provement in cements is needed when they are used in concrete "made under rigid control." This, it seems to me, indicates that you agree that undesirable variation in concrete properties can best be corrected by improving concrete control. It would be an economic waste to reduce variation in properties of cement by instituting additional manufacturing controls and thereby increasing unit cost, when the benefits of such reduced variation are not needed in work where concrete is controlled.

Committee C-1 appreciates the importance you attribute to its work. It will continue, as it has for more than half a century, to provide cement users and cement manufacturers with the most appropriate and useful specifications and methods of testing that the state of the art permits. It will continue to give careful consideration to all suggestions it receives.

R. R. LITEHISER
Chairman
ASTM Committee C-1
on Cement

Editor's Note—The revisions recommended by Committee C-1 are a step in the right direction.

A Lot's in a Name

SIR—I go along 100% with your statement that the best name for the Chesapeake Bay Bridge-Tunnel is "The Chesapeake Bay Bridge-Tunnel" (ENR July 6, p. 90). Would that there were more like you.

One of the major shortcomings of our present word-happy civilization is the amount of time and effort devoted to thinking up slogans, catch-words and trick phrases, which in at least nine cases out of ten are merely ludicrous and ridiculous. Little wonder we are laughed at abroad.

It grows wearisome indeed to read about the two pants suit-a-ramas, the thinking man's filter, the exciting new hinges for the functional door, etc. ad nausem.

Keep up the good work.

GEORGE W. MILLER
Glendale, Calif.

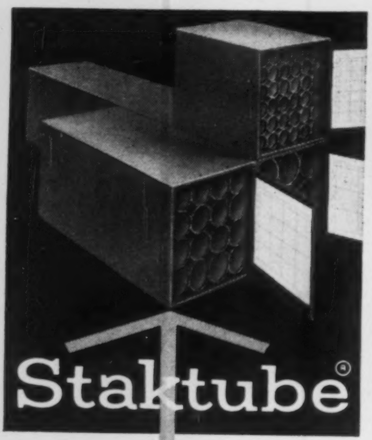
SIR—You have suggested "The Chesapeake Bay Bridge-Tunnel" as a suitable name for the new Chesapeake Bay tunnel and bridge combination. I have used this route with the ferries many times. It traverses the whole length of the Del-Mar-Va peninsula, as the area is known locally. Why not then give it a distinctive name? Del-Mar-Va Connection is my suggestion. This would avoid confusion with the Chesapeake Bay Bridge, which, as you know is in an entirely different location. The word "Connection" is simple and better than the awkward "Bridge-Tunnel" compound.

LEWIS E. MOORE
Vero Beach, Fla.

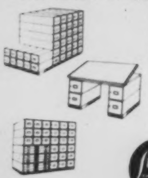
No matter how you figure it
money saving time, worry free installation all add up to Klemp "Certified Performance"

Shop drawings submitted for approval, when necessary, showing size and shape of grating area, clearances of obstructions • triple check accuracy of dimensions • every panel clearly marked for sequence for easy installation • over all dimensions and obstruction openings must conform to shop drawings when entire installation is laid out on our shop floor • all erection diagrams showing panel marks supplied for field installations.

KLEMP Corporation
Leading Producer of General Grating • 1132 W. Blackhawk St., Chicago 22, Ill. • WHitehall 4-5650
Plants & Offices: New York City
Houston, Texas
Albany, California
WRITE TODAY FOR
Free Catalog on all types of Grating and the most comprehensive Manual of Information on Specification of Grating.



Stacor's lifetime steel
ROLL FILE SYSTEM

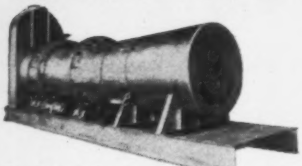


"Easy-file easy-find" system to keep rolled prints, plans, maps clean, safe. 32 sizes—8 lengths, 4 tube diameters.

Send NOW for illustrated catalog

STACOR EQUIPMENT CO.
279 Emmet St., Newark 14, N. J.
Phone: BIgelow 2-6600

POSEY
IROQUOIS DRYERS

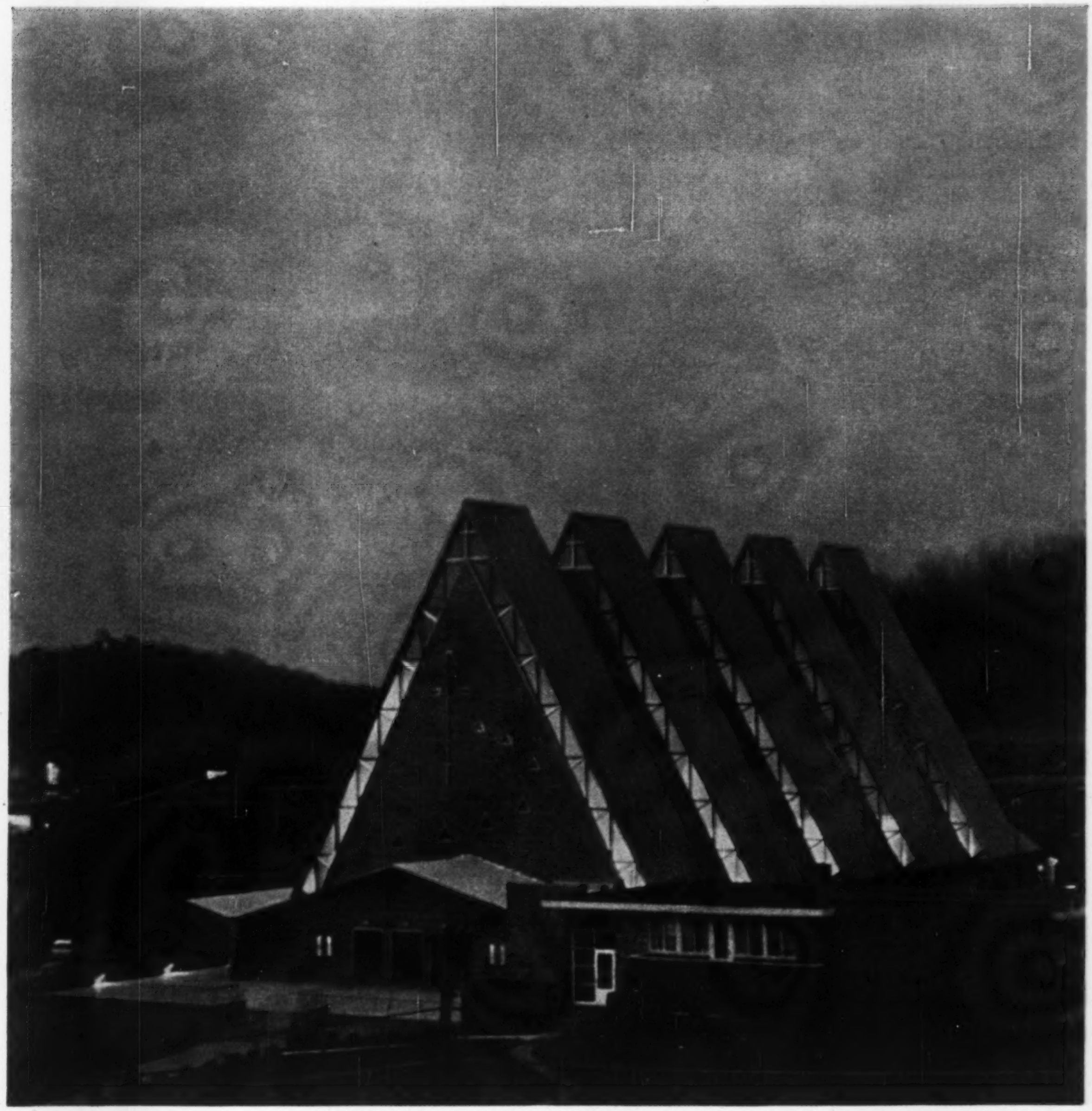


Continuous drying and heating for all types of bituminous paving aggregates. Standard and special sizes engineered for your tons-per-hour requirements.

Write for free 16-page catalog for asphalt plants and equipment.

POSEY
IRON WORKS INC

Custom Fabrication For Over 50 Years
DIVISIONS:
• Iroquois Asphalt Plants • Mixers and Blenders
• Tunnel Forms • Industrial Heating • Foundry
• Large OD Steel pipe
561 S. PRINCE STREET LANCASTER, PA.



St. Sebastian's Catholic Church, North Hills, Pittsburgh, photographed for Alcoa by Leonard Schugar

Practical beauty doesn't demand a premium price

—as aluminum demonstrates so thriftily in this newly built church. Its peaked roof is Alcoa® Aluminum Batten Roof—economical to buy and install and blessed with the saving grace of beauty that lasts. It is available in textured aluminum sheet, including a broad spectrum of colorful Alumalure® baked enamel finishes. Inexpensive, permanently handsome and granting complete freedom of aesthetic expression, Alcoa Aluminum is truly the architect's metal.

For further thinking in architecture and building, we suggest you call on the world's largest reserve of aluminum application experience. Call your nearby Alcoa sales office, or write Aluminum Company of America, 816-K Alcoa Building, Pittsburgh 19, Pa.

ARCHITECTS: Gerard and McDonald; M. W. Stuhldreher, Associate, Pittsburgh

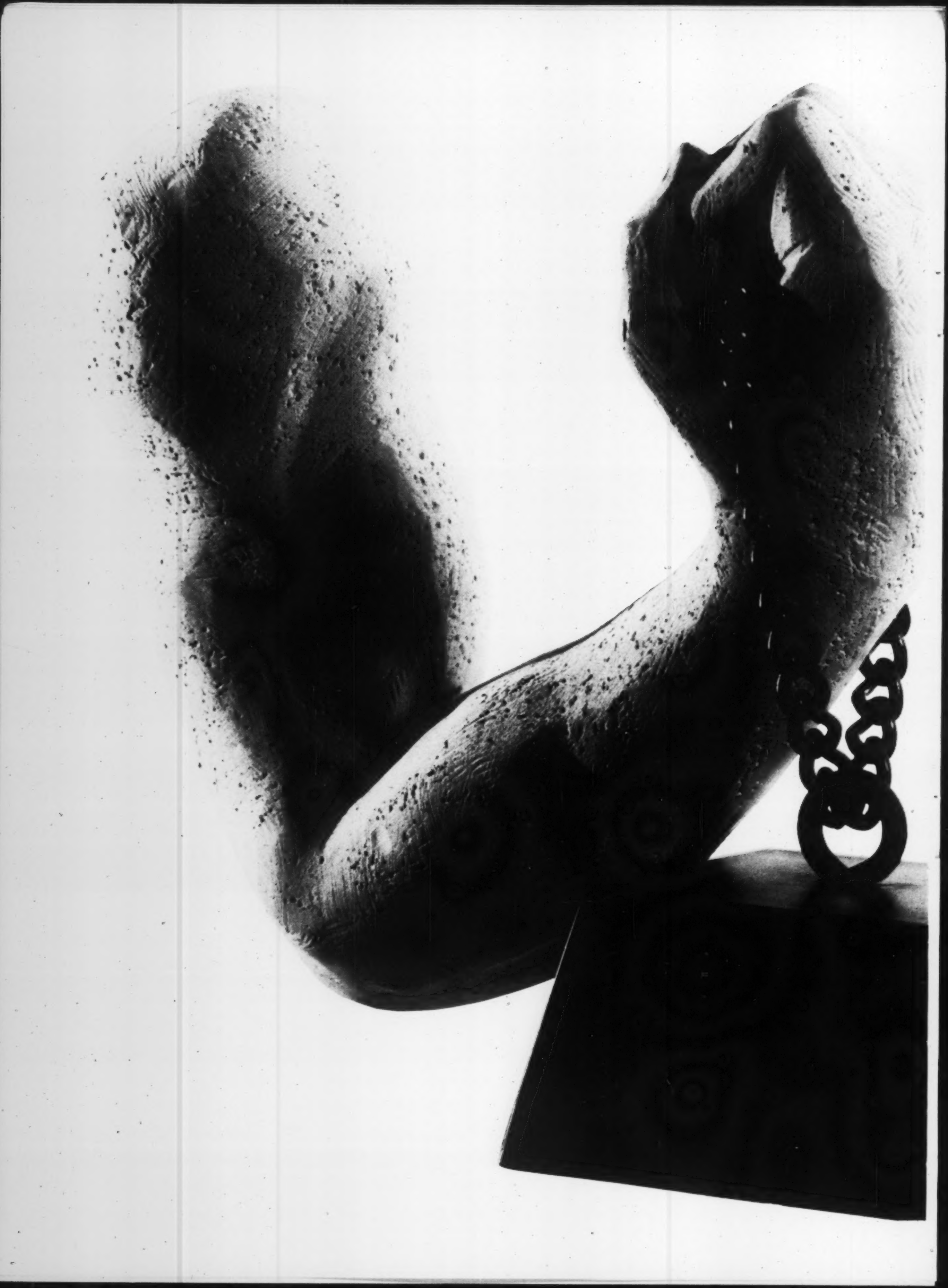
GENERAL CONTRACTOR: Mellon-Stuart Co., Pittsburgh

ALUMINUM SUBCONTRACTOR: Miller-Gyekis, Inc., Pittsburgh

Entertainment at its Best
ALCOA PREMIERE
with Fred Astaire as Host
Tuesday Evenings, **ABC-TV**

ALCOA ALUMINUM

THE ARCHITECT'S METAL

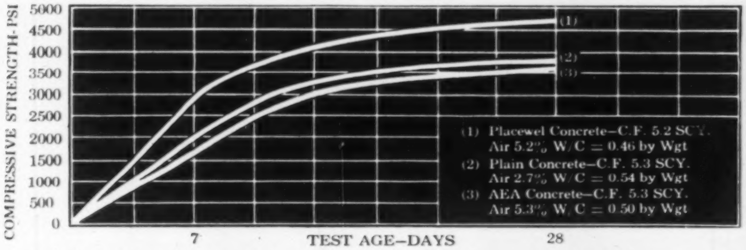


Increase concrete strength 30% with J-M Placewel…

the liquid admixture that gives you 5 key controls of concrete

Placewel®, a product of Johns-Manville, world's largest industrial user of portland cement, permits a new high in compressive and flexural strength. This superiority has been proved in millions of yards of concrete.

Placewel is a water-reducing, dispersing agent *plus* a catalyst. It is available with or without an air entraining agent. Placewel, by breaking up the cement flocs, releases water for lubrication that isn't normally available. Thus, mixing water requirements are cut without relying on air entrainment alone. The Placewel catalyst enhances the strength-gaining characteristics of portland cement. This unique combination of properties provides a 30% increase in concrete strength (see chart).



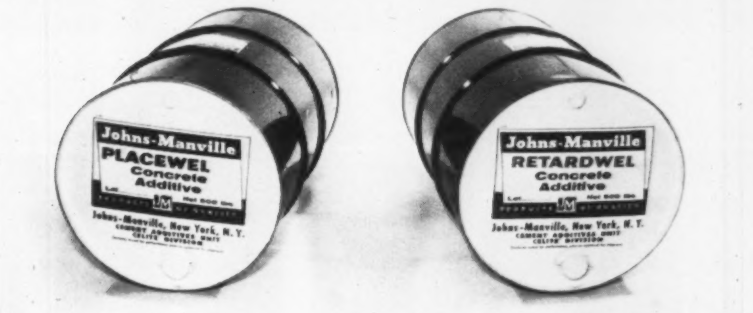
Compressive strength – performance of Placewel vs. plain and air entrained concrete

Less than three ounces of Placewel per sack of cement will also –

- Increase durability 350%
- Increase workability
- Improve dimensional stability
- Reduce permeability

J-M Retardwel® is recommended when concreting conditions require longer placing and finishing time. Retardwel delays the initial set of concrete and yet provides higher 24 hour strength.

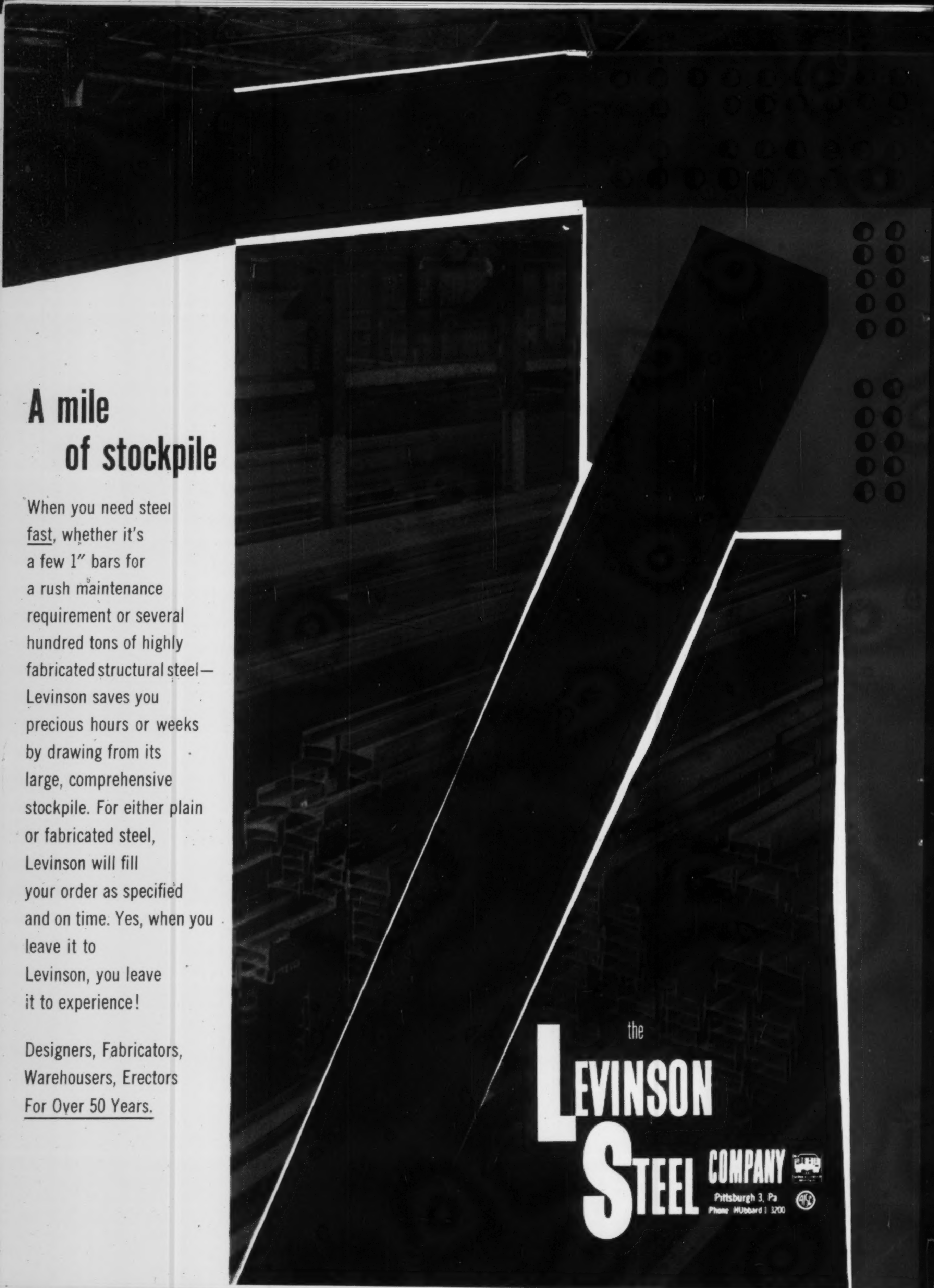
Architects and engineers the world over have learned that Placewel and Retardwel give them complete control over the concrete they specify. For full information and technical assistance write: Johns-Manville, Box



JOHNS-MANVILLE

JOHNS-MANVILLE JM PRODUCTS

Celite Division



A mile of stockpile

When you need steel fast, whether it's a few 1″ bars for a rush maintenance requirement or several hundred tons of highly fabricated structural steel—Levinson saves you precious hours or weeks by drawing from its large, comprehensive stockpile. For either plain or fabricated steel, Levinson will fill your order as specified and on time. Yes, when you leave it to Levinson, you leave it to experience!

Designers, Fabricators,
Warehousers, Erectors
For Over 50 Years.

the
LEVINSON
STEEL COMPANY
Pittsburgh 3, Pa
Phone HUbbard 1 3200

ENGINEERING NEWS-RECORD

Vol. 167, No. 16 October 19, 1961

Number of copies printed in this issue 88,047

CONTENTS

AASHO Warned of Payola Perils 25
Russian Highways Aren't the Best, but 26
Stream Cleanup Progress Cussed, Discussed ... 28
States Get Final Funds for Fiscal '63 Road Aid .. 29
Maine's I-95 Wins Beauty Award 29
Prestressing Resists H-P Thrusts 29
Glass Curtain Encloses Building 30
Heliport Tops Parking Garage 30
Texas Water Plan Costs $3 Billion 30

FEATURES

Prestressing Stringers Reduces Bridge Weight .. 32
New Airport Offers Jet Parking 34
New Emulsion Speeds Road-Mix Paving 36
Leadville Strikes a New Bonanza 41
Atlanta's Tallest Went Up Fast 44

INTERNATIONAL

Naples' New Terminal: Cover with Style 49
Bid Call Due on Syrian Dam Project 49
Japan to Institute New Code 50
Giant Shiploader Begins Ore Job 50

FIELD AND OFFICE

Trailer-Mounted Conveyor Covers the Waterfront 53
Rail Cart Spots Pre-Cast Beams 54
Robot Informs Sidewalk Supers 54

NEW PRODUCTS

Machine Backfills Automatically 59
Steel Pre-fabs Offer Variety 59
Combination Body Fits Most Small Trucks 59
Counterweighted Beam Lifts, Balances Panels ... 60
Variable-Area Flow Meter with Metal Tube 60

MEN AND JOBS

AASHO's New Chief: California's Womack 76
Management Changes at Perini 78
Puls Leaves Bureau of Reclamation 78

BUSINESS AND FINANCE

New Development Bank Moves Project Funds .. 120
Politics Stalls Boston Highway Job 123
Home-Improvement Loan Program Trips on Law. 123

LABOR

AFL-CIO Sets a Middle Course 125
NLRB Upsets Picketing Ban 126
Supreme Court Declines to Review Agency Shop 126
Building Trades Council Urges Non-Discrimination 126

Reader Comment ... 6
Washington Observer 23
Books 64
Obituaries 85
Unit Prices 91
Materials Prices 93
Construction Reports. 94
Statistics, Indexes ... 119
Legal 129
Editorials 140

Picture Credits

Cover, 76, 77—ENR; 30, top 49—McGraw-Hill World News; 30 bottom, Van Bourg/Nakamura and Ratcliff & Ratcliff; 32, 33—U. S. Steel; 34—L. A. Airport Photography; 50 bottom—Hollenzer, Copyright ©.

Back issues of ENGINEERING NEWS-RECORD *are generally available for the previous six months. Semiannual indexes will be sent on request.* ENGINEERING NEWS-RECORD *is also indexed in the Applied Science & Technology Index, Business Periodicals Index and the Engineering Index*

THE CONSTRUCTION WEEK

TRANSPORTATION JOINS HOUSING—Housing Administrator Robert C. Weaver, speaking at the ASCE convention in New York, announced establishment in HHFA of an Office of Transportation. The new unit will be responsible for administration of the mass transportation demonstration grant program and transportation facility loans. Head of the new office will be Prof. John C. Kohl, director of the Transportation Institute of the University of Michigan and chairman of ASCE's Committee on Mass Transportation.

SPECULATING IN WATER—Water Industries Capital Corp., organized as a Small Business Investment Co. (SBIC), proposes the sale of 500,000 shares of its stock. Net proceeds of $5 million from the sale would be invested in companies involved in supply, transportation, distribution, purification and demineralization of water.

A WEIGHTY MATTER—It took eight days of deliberation and 1,500 words printed on more than four pages to decide that a low bid for a Wilmington, Del., project that came in 30 seconds late could be legally accepted. In deciding the matter, the city solicitor saved Wilmington $33,065 on improvements to the city's sewage plant. The on-time low bid was $862,800; the "late" bid—$829,735.

EMPTY $115-MILLION NEST?—Dulles International Airport, under construction just west of Washington, D. C., will open in a year, but airlines are staying away in droves so far. One stumbling block: The owner, the U. S. government, doesn't provide hangars, and airlines are reluctant to build their own. Financially hard-pressed airlines are wary of the cost of shifting operations from Washington National and Baltimore Friendship airports.

NO STRIKES, NOBODY OUT—A last-minute, tentative agreement on contract terms by International Harvester Co. and UAW averted a strike. Pact may set the construction equipment industry pattern.

CHEAPER UNDER WATER—A British-French commission of transportation experts says a railway tunnel under the English Channel is the most feasible way to link the two countries. The experts, known as the Channel Study Group, say a two-lane railway tunnel would cost $105 million, but a bridge would cost twice as much.

DOES CRIME PAY?—Although the rest of Oxnard, Calif., may one day be "hot" with radioactive fallout following thermonuclear bombing, its jail will be quite "cool." The jail's extra-thick windowless walls make it an excellent fallout shelter, according to a team of architects inspecting the city's buildings.

TUF-FLEX
allows up to 4″ lateral displacement
and 8° twist in each 4′ length

FROM CENTER LINE

new

DIAMOND
TUF-FLEX™
Roller Chain

for crawler drives, transit-mix trucks and other heavy-duty equipment . .

gives you **longer service life!**

- accommodates gross sprocket misalignment and severe chain twist
- absorbs greater shock and peak loads
- provides higher working load capacity
- reduces stiffness after exposure to weather, mud, dust and dirt

Fits all standard pitch sprockets

Write today for new *Tuf-Flex* folder. Gives engineering features, construction details, specifications and prices . . .

DIAMOND CHAIN COMPANY, INC.
A Subsidiary of American Steel Foundries
Dept. 650 • 402 Kentucky Avenue
Indianapolis 7, Indiana

DIAMOND ROLLER CHAINS ®

*The Trade Mark *Tuf-Flex* is the property of The Diamond Chain Company, Inc.

WASHINGTON OBSERVER

- **Tax-break directive ignores construction**
- **Labor troubles threaten missile base jobs**
- **Boom in construction predicted for 2000**

● **The way is open for more liberal tax depreciation allowances for a variety of industries—but not necessarily construction equipment.** This is the interpretation placed by White House and Treasury Department officials on President Kennedy's directive last week permitting faster tax write-offs on production equipment in the textile industry. Other similar decisions will be made for other industries in the months ahead.

The plan permits writing off equipment in, say, 15 years instead of 25 or 40 years. Next in line for similar treatment are manufacturing industries that have had a difficult time meeting foreign competition. On this ground, Administration officials have placed construction equipment well down on the list for consideration. In addition, construction equipment already has a relatively short tax life—an average of 5 to 10 years—and there is not much room for reduction.

—

● **President Kennedy's Missile Sites Commission is seeking to forestall a new outbreak of labor trouble at key missile bases.** The matter was thrashed out at an emergency meeting last weekend. AFL-CIO craft unions protest that new missile site work is going to nonunion subcontractors with below-union pay scales and fringe benefits. The unions, bound by no-strike pledges, warn that such practices are disrupting labor relations at Cape Canaveral, Fla., Vandenberg Air Force Base, Calif., and other missile bases. Unless conditions change, they say, work stoppages seem bound to result.

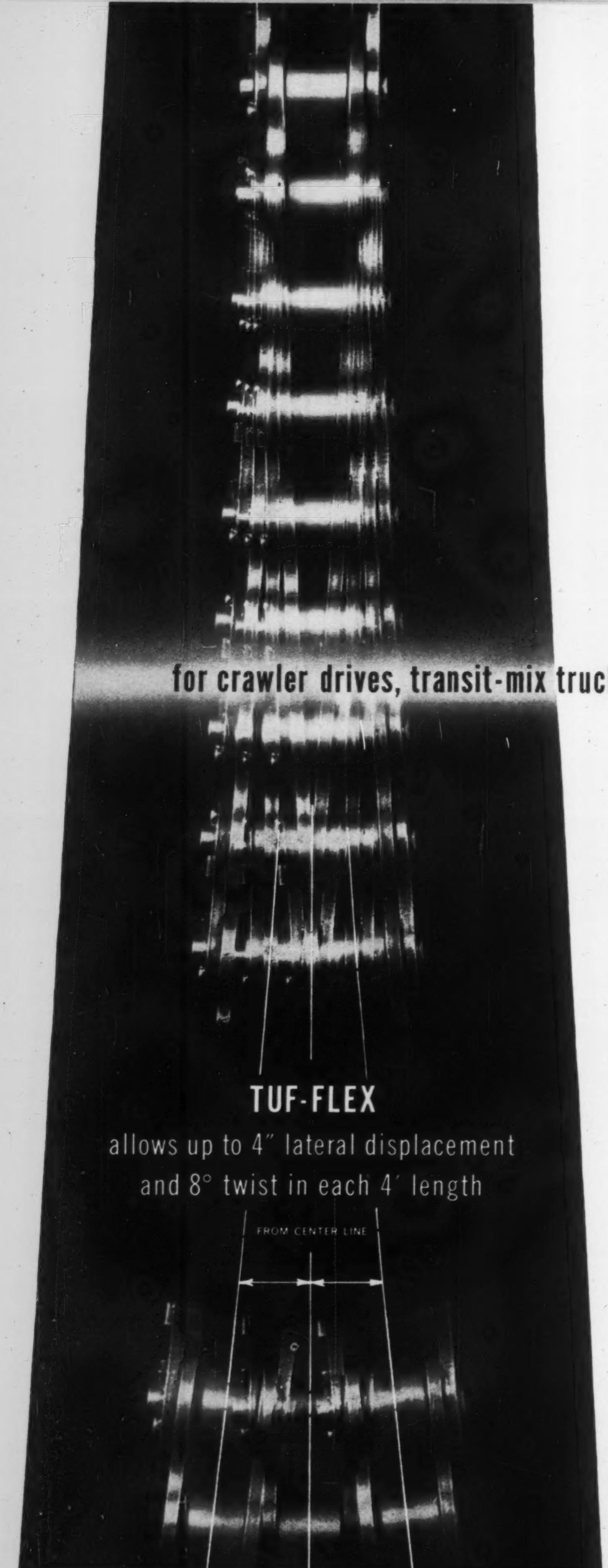
As a possible solution, Commission members are discussing the feasibility of a "uniform master agreement" for all missile bases. Still in the talking stage, this plan would provide standard contract terms for all missile site contractors and subcontractors—union or nonunion. Some feel this would prevent any "whipsawing" of labor wage rates and fringe benefits.

A special Labor Department committee, meanwhile, has laid down guidelines for when the Davis-Bacon law should apply to missile work. It should apply, says the committee, when the work involves construction, facilities to house the missile, and services. It should not apply on servicing the missile itself or making it fully operable. This compromise is intended to end the dispute between craft-union contractors and manufacturers using industrial-union labor at missile sites.

—

● **New construction activity is expected nearly to double by 1975.** And another doubling of activity is expected by the year 2000. These projections come from economists in the Commerce Department's Business and Defense Services Administration. Here are specific figures: Construction activity of $55.6 billion in 1960 already has risen to about $58 billion and will rise to about $107 billion in 1975, and $219 billion in 2000.

There are some interesting projections broken down in the study. Private residential construction is expected to rise from $22.5 billion in 1960 to $45.5 billion in 1975, and $74.2 billion in 2000. Commercial and industrial construction is expected to increase from $7 billion last year to $11.9 billion in 1975 and then zoom to $29.4 billion in 2000. Highway construction anticipates a steady rise from $5.5 billion in 1960 to $12.1 billion in 1975, and $27.5 billion in 2000.



TUF-FLEX
allows up to 4″ lateral displacement
and 8° twist in each 4′ length

new

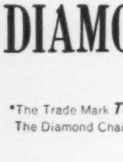
DIAMOND
TUF-FLEX™
Roller Chain.

for crawler drives, transit-mix trucks and other heavy-duty equipment..

gives you **longer service life!**

- accommodates gross sprocket misalignment and severe chain twist
- absorbs greater shock and peak loads
- provides higher working load capacity
- reduces stiffness after exposure to weather, mud, dust and dirt

Fits all standard pitch sprockets



Write today for new *Tuf-Flex* folder, Gives engineering features, construction details, specifications and prices . . .

DIAMOND CHAIN COMPANY, INC.
A Subsidiary of American Steel Foundries
Dept. 650 • 402 Kentucky Avenue
Indianapolis 7, Indiana

DIAMOND ROLLER CHAINS ®

*The Trade Mark *Tuf-Flex* is the property of The Diamond Chain Company, Inc.

WASHINGTON OBSERVER

- **Tax-break directive ignores construction**
- **Labor troubles threaten missile base jobs**
- **Boom in construction predicted for 2000**

● **The way is open for more liberal tax depreciation allowances for a variety of industries—but not necessarily construction equipment.** This is the interpretation placed by White House and Treasury Department officials on President Kennedy's directive last week permitting faster tax write-offs on production equipment in the textile industry. Other similar decisions will be made for other industries in the months ahead.

The plan permits writing off equipment in, say, 15 years instead of 25 or 40 years. Next in line for similar treatment are manufacturing industries that have had a difficult time meeting foreign competition. On this ground, Administration officials have placed construction equipment well down on the list for consideration. In addition, construction equipment already has a relatively short tax life—an average of 5 to 10 years—and there is not much room for reduction.

—

● **President Kennedy's Missile Sites Commission is seeking to forestall a new outbreak of labor trouble at key missile bases.** The matter was thrashed out at an emergency meeting last weekend. AFL-CIO craft unions protest that new missile site work is going to nonunion subcontractors with below-union pay scales and fringe benefits. The unions, bound by no-strike pledges, warn that such practices are disrupting labor relations at Cape Canaveral, Fla., Vandenberg Air Force Base, Calif., and other missile bases. Unless conditions change, they say, work stoppages seem bound to result.

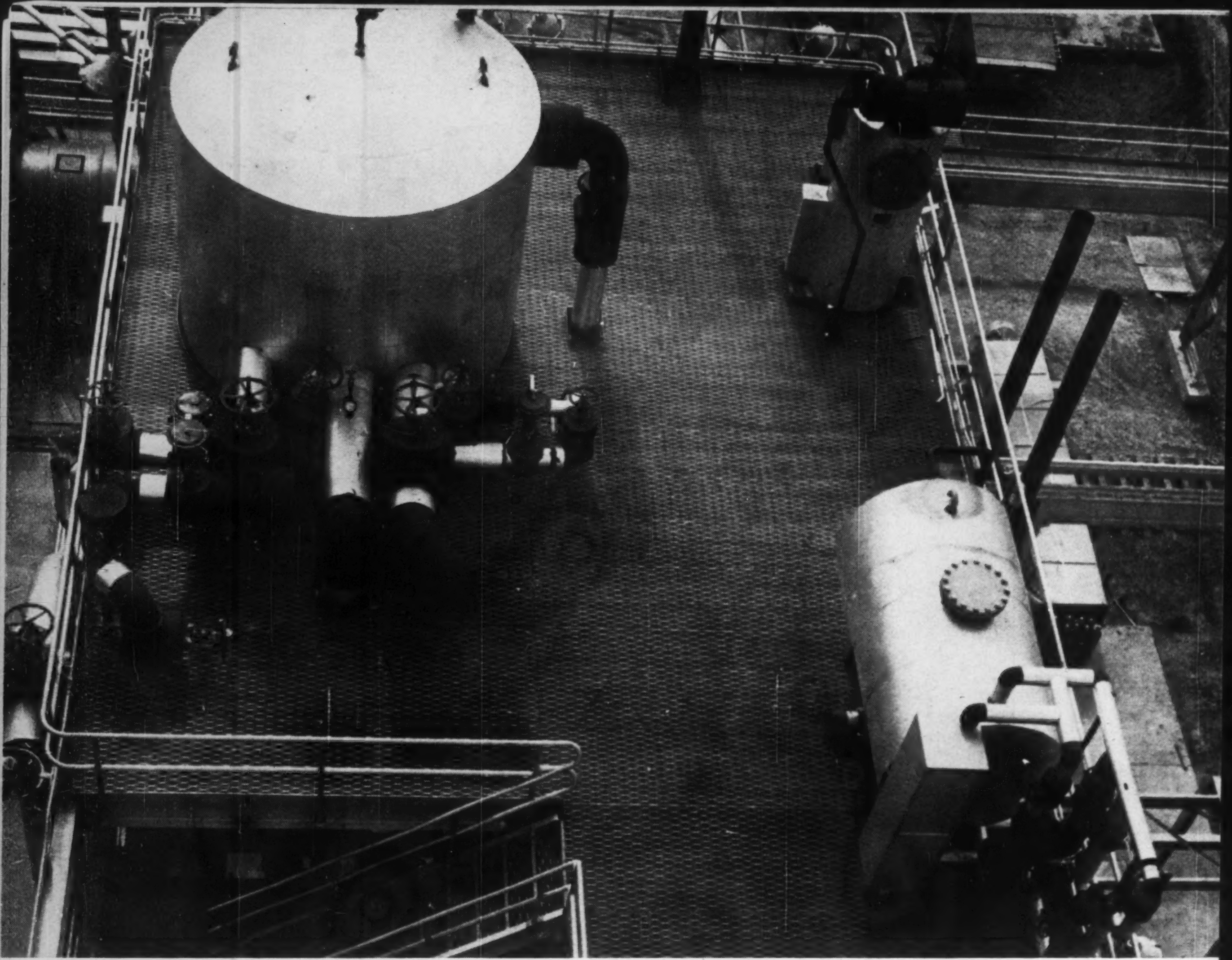
As a possible solution, Commission members are discussing the feasibility of a "uniform master agreement" for all missile bases. Still in the talking stage, this plan would provide standard contract terms for all missile site contractors and subcontractors—union or nonunion. Some feel this would prevent any "whipsawing" of labor wage rates and fringe benefits.

A special Labor Department committee, meanwhile, has laid down guidelines for when the Davis-Bacon law should apply to missile work. It should apply, says the committee, when the work involves construction, facilities to house the missile, and services. It should not apply on servicing the missile itself or making it fully operable. This compromise is intended to end the dispute between craft-union contractors and manufacturers using industrial-union labor at missile sites.

—

● **New construction activity is expected nearly to double by 1975.** And another doubling of activity is expected by the year 2000. These projections come from economists in the Commerce Department's Business and Defense Services Administration. Here are specific figures: Construction activity of $55.6 billion in 1960 already has risen to about $58 billion and will rise to about $107 billion in 1975, and $219 billion in 2000.

There are some interesting projections broken down in the study. Private residential construction is expected to rise from $22.5 billion in 1960 to $45.5 billion in 1975, and $74.2 billion in 2000. Commercial and industrial construction is expected to increase from $7 billion last year to $11.9 billion in 1975 and then zoom to $29.4 billion in 2000. Highway construction anticipates a steady rise from $5.5 billion in 1960 to $12.1 billion in 1975, and $27.5 billion in 2000.



A GOOD GRATING INSTALLATION TAKES GOOD ENGINEERING

Borden quality standards of engineering and manufacturing are *apparent* in the final installation which is always properly fitted, symmetrical, and free from warps or camber.

Here's how it's done. A good grating installation starts with proper planning and checking. This free service by Borden insures correct dimensions, fit and placement. Where necessary, it begins with a shop plan of the grating area, continues with careful checking of each grating panel and layout of entire platform on our shop floor. It concludes with a complete erection diagram showing panel-mark numbers corresponding to those on each grating panel.

The Result: A trouble-free field installation.

But even more: Borden manufactures every type of floor grating and safety step—your assurance of the right grating for each job.

1962 BORDEN CATALOG AVAILABLE ON REQUEST.

BORDEN METAL PRODUCTS CO.

MAIN OFFICE: 815 GREEN LANE, ELIZABETH, NEW JERSEY • *Elizabeth 2-6410*
PLANTS AT: LEEDS, ALABAMA; UNION, NEW JERSEY; CONROE, TEXAS

AASHO Warned of Payola Perils

- **Whitton: If we don't demonstrate that we are doing the job right, some other agency may be called in to do it.**
- **Blatnik: Highway research by all agencies has not kept pace with the program. More highway dollars must be used.**
- **Slayton: Upon our efforts rests the future of our cities. We must always seek complete coordination of our activities.**

Highway engineers and officials gathered in Denver last week for the 47th annual convention of the American Association of State Highway Officials focused attention on three major areas of accomplishment and concern:

- Proper administration and control of the vast highway program.
- Urban highway planning and the role that highways play in shaping the modern city.
- Expanded research in every area of highway improvement.

Passage of the 1961 Federal-Aid Highway Act (ENR June 29, p. 20) provides a sound fiscal basis for completion of the Interstate System by 1975. But Congressmen and association spokesmen warned of remaining legislative proposals affecting the highway program, including assorted attacks on the integrity of the Highway Trust Fund.

Nor was there any lack of interest in detailed technical matters. The more than 1,500 delegates in attendance heard speakers on a wide spectrum of technical subjects ranging from right-of-way acquisition and legal affairs to electronic data processing and construction processes.

Rex M. Whitton, Federal Highway Administrator and a past president of AASHO, sounded a keynote at the opening general session when he said, **"We now have the means to complete the greatest highway program in history and we can't afford to fumble the ball.**

"The enactment of the Federal-Aid Highway Act of 1961 has not by any means solved all of our problems. Those remaining must be solved by us, not by Congress or the President.

"Many eyes are looking over our shoulders and in some ways the federal-state partnership is on trial. If we don't demonstrate that we are doing the job right, then we must face the possibility that some other agency will be called to do it."

Referring to widespread criticism of the highway program in some quarters, Mr. Whitton said, "The states and the Bureau (of Public Roads) will be held strictly accountable to Congress and the public if instances of wrongdoing and bad judgment continue to turn up. We must be constantly alert for shady practices or the development of situations which easily lend themselves to misinterpretation."

Dwight Bray, retiring AASHO president and chief engineer of the Kentucky Department of Highways, challenged the group when he said, "We have been given the go-ahead signal. Now it is up to us to demonstrate that we have both the ability and the integrity to carry on the work efficiently and honestly."

Two members of the House subcommittee on roads discussed the facts revealed in hearings before that group.

The chairman, Rep. John Blatnik (D., Minn.), said, **"On the basis of the record, there is grave doubt that the federal dollar has been buying a dollar's worth of properly built highway.** Our investigations have demonstrated that the focal point for most of the trouble lies at the construction site."

Said Rep. Gordon Scherer (R., Ohio), "There are just too many sharp and questionable practices being brought to light. Some of these sharp practices and misuses of highway funds place in the hands of our opponents the most effective weapon for destroying the federal-state highway partnership." (In March, 1960, Representative Scherer told delegates to 41st annual convention of Associated General Contractors that most of the charges of graft and corruption in the highway program were totally irresponsible—ENR Mar. 31, 1960, p. 20.)

However, said Representative Blatnik, "The members of the Subcommittee have been heartened by the promptness and vigor with which AASHO, the Bureau of Public Roads and affected states have responded to the demonstrated need for affirmative, corrective action as the result of our hearings."

Walter Johnson, chief engineer of the Kansas Highway Department, reported the results of a nation-wide survey of the use that has been made of the AASHO Project Procedures Guide published late last year. Forty-six (of a possible 52) agencies supplied information in the survey.

All 46 states have distributed the guide to their employees. The distribution has been nearly complete to the department head level, 98%; (93% to district engineers and 89% to project engineers). **However, less than two-thirds of the states have distributed it to inspectors, laboratory technicians and others who perhaps have the greatest need for the information contained in the guide.** Only about half the states have prepared and distributed addenda to the guide, together with instructions for their use.

The guide is beginning to accomplish its purpose, says Mr. Johnson. "Its distribution has brought about a general review of existing practices accompanied by improvements in all areas of interest."

AASHO members from the big city and big money states (and others, as well) are acutely aware of the urban

. . . AASHO highlights urban planning, research and payola

transportation problem. One of these is AASHO's newly elected president, California's Jasper C. Womack (see profile, p. 76).

The position of AASHO in regard to urban transportation was spelled out in Denver as part of a policy statement on highways in a national transportation policy. (Chief administrative officers of the member departments developed the statement for inclusion in a comprehensive study report to be submitted to President Kennedy in November.)

Key statements included these:

- Urban portions of the Interstate System should be planned and developed by the state highway departments as urban extensions and connections of the over-all highway network, in cooperation with appropriate local governments and interested federal agencies.
- The development of scientific relationships among transportation, land use and urban development should be explored and established in order that highways in urban areas may be properly planned to serve the greatest need.
- In major urban areas, where both highways and rail transit facilities are required, they should not be considered competitive, but should be planned to complement each other in an efficient integrated system for transporting people and goods with the desires of the public being the major guide.

William L. Slayton, Commissioner of the Urban Renewal Agency, spelled out his views at an important meeting of AASHO's Committee on Urban Transportation Planning. Said Mr. Slayton, "**Upon our efforts rests the future of our cities. We must always seek complete coordination of our activities—to do less would be folly.**

"We must rely on the development of a comprehensive planning process that is able to knit together at the local level highway planning, urban renewal planning, general land-use planning, school system planning and planning for each of the separate programs concerned with the improvement of some aspect of our urban environment."

Donald C. Wagner, managing director of the City of Philadelphia, told the same group, "Of the many groups that have been struggling with metropolitan transportation problems, each one has come to realize that separate policies on highways and mass transit must be merged in a common approach, based on total transportation as it relates to urban growth . . ."

Several speakers urged additional expenditures for research to keep pace with the needs of the accelerated highway program.

Said Federal Highway Administrator Whitton, "We need more research and more application of research. We must see to it that research is in keeping with the needs of our programs."

Representative Blatnik also emphasized research, saying, "**Highway research by all agencies has not kept pace with the accelerated program.** More highway dollars must be utilized in research than has been the case in the past."

A proposal that the state highway departments pool some of their research funds is now out for approval by AASHO member departments. If approval (and money) is forthcoming, AASHO will take action on a specific group of research proposals.

Key AASHO committees have again postponed announcement of results of the Ottawa Road Test. Flexible and rigid pavement design recommendations may be revealed next year. Recommendations as to maximum sizes and weights of vehicles may not be ready until 1963. Highway legislation that will come up for action in the next session of Congress was detailed by Rep. George Fallon (D., Md.) and Gen. L. W. Prentiss, executive vice-president of the American Road Builders Association. Expected proposals include:

- Biennial authorization for the ABC program for fiscal years 1964 and 1965.
- An amendment to the federal-aid highway law requiring assurances that satisfactory housing will be made available for families displaced by federal-aid highway projects.

U. S. highway experts touring the Soviet Union find lags

Russian Highways Aren't

A seven-man team of U. S. highway experts has concluded, after a 24-day tour of Russia, that the Soviet Union lags behind the United States in highway design, construction and research, but that Russia's road system is entirely adequate for her needs. Trains, planes and rapid transit—not motor vehicles—are the primary means of transport in the Soviet Union.

Russia's 1-million-mile road network (U. S. total: 3.5 million miles) is roughly comparable to this country's primary and secondary federal-aid highway system, the group found. The Soviets are not building, nor do they have on the drawing boards, anything to match the U. S. Interstate System.

The typical Russian intercity highway is a two-lane asphalt road with dirt shoulders and satisfactory grade and alignment. It accommodates a traffic volume of 1,000 to 4,000 vehicles a day, depending on location.

The American team, headed by Deputy Commissioner and Chief Engineer F. C. Turner of the Bureau of Public Roads, inspected the Russian road network September 3-26 under terms of a U. S.-Soviet technical and scientific exchange agreement signed in late 1959.

A nine-man group of Russian highway officials, headed by Nikolai Illich Litvin, chief of highway construction in the Ministry of Transport Construction, is currently in this country on a similar tour.

The exchange was to have taken place last year but was delayed after the Russians shot down the American U-2 spy plane.

Here are some of the conclusions and

F. C. TURNER of BPR lead U.S. team.

impressions of the American team after its visit to Russia:

- The Soviet Union has no present need for a superhighway system comparable to that being built in the United States. There are only 5 million vehicles (compared with this country's 76 million) to use its road system. Most of these—3.5 million—are trucks. The 1.5 million automobiles are concentrated mainly in cities, and are mostly taxis and government-owned cars.
- The Russian people have neither the means nor the freedom to travel extensively. A modern airline and excellent railroad system are the principal means of passenger travel. Railroads also move most of the freight. Trucks are largely limited to moving freight from farms or industrial plants to rail heads.
- About 25% of Russia's roads are surfaced; 10% paved.
- City streets are generally adequate.

- Transfer of financing of forest and public lands highways (about $37 million per year) from the General Fund to the Highway Trust Fund.
- Transfer of aviation fuel receipts from the Trust Fund into the General Fund (about $22 million in the current fiscal year).
- Reimbursement to the states for tollroads and some free roads incorporated in the Interstate System.
- Some form of legislation dealing with the urban transportation problem.

AASHO went solidly on record as opposing "use of any Highway Trust Fund monies for any program other than now authorized by law."

Albert Atwell, a member of the transportation policy group consultants to the Department of Commerce and other governmental agencies, spelled out plans for a proposed demonstration automatic highway.

Opening of a proposed 100-mile section of electronic road is at least four years away, says Mr. Atwell. A tentative timetable allows one year for analysis of an approach to the problem, another year of experimentation with basic systems and two years for construction.

Two research engineers reported the results of tests of nuclear devices to measure soil density and moisture.

S. H. Kuhn of South Africa reported that the nuclear method is nine times faster and just as accurate as traditional methods. Reliability is within 5% of actual moisture content and 3% density.

W. R. Brown, of the Colorado Department of Highways, reported that an extensive series of tests with one device resulted in 95% of the nuclear moisture readings being within 2% of moisture contents determined by the traditional method. In density determinations 83% of the nuclear readings were within a tolerance of 3 lb per cu ft by a standard method.

William A. Bugge, director of highways for the State of Washington won AASHO's Thomas A. MacDonald Award. Mr. Bugge is a past president of AASHO, a previous recipient of the George S. Bartlett Award and current chairman of the Highway Research Board.

John C. Mackie, Michigan Highway Commissioner, was elected first vice president of AASHO. Regional vice presidents are William Froehlich, Pennsylvania; H. H. Harris, Virginia; Walter Johnson, Kansas; and Bryce Bennett, Idaho.

in design, construction and research, and they conclude:

the Best, but They're Good Enough

Moscow is particularly notable for its wide boulevards. Pavement alone on many of these runs 150-175 ft in width.

Under development in the capital city (population 7 million) is a series of ring highways. The seventh of these rings is a four-lane, divided circumferential highway with controlled access designed to accommodate 20,000-25,000 vehicles daily. It is 62 miles long and scheduled for completion next year.

At the request of the Russians, the American delegation offered a critique of this project. The U. S. officials felt the Russians are making a mistake in not providing structures and space now for eventual widening of this highway to at least six lanes. They also criticized the lack of American-type speed change lanes at access points.

(The Russians accepted all criticism in good spirit and at all times treated the U.S. delegation with friendship.)

Russian construction methods are generally less satisfactory than this country's. There is not enough heavy rolling of fills and bases. Portland cement sealing is a problem. Harsh concrete mixes are used.

All equipment is noticeably underpowered by American standards. Pavement mixes are hauled in side-dump, non-agitator trucks. The mixes must be transported long distances from giant central mixing plants and often begin hardening en route.

The use of precast and prestressed concrete is almost an obsession with the Russians. They use it for long-span girders, footings, retaining walls, columns, caps and all sorts of components for buildings.

In construction as in other fields, they are obsessed with a drive to surpass the rest of the world by having "the biggest," even where bigness may be uneconomical and unrealistic, says Mr. Turner. For instance, in Leningrad they have built a six-story, brick asphalt mixing plant having a capacity of more than 1,000 tons an hour. It is larger than anything in this country, though there is serious doubt that the Russians really need a plant of this capacity.

The U. S. delegation generally learned nothing new from Russian research projects. They had expected the Russians to display a number of sonic or nuclear testing devices not used in the U. S., but they either don't have them or wouldn't show them. There were some indications that the Russians may be ahead of this country in research on welding techniques.

In addition to Mr. Turner, the Americans who visited Russia included O. K. Normann, deputy assistant commissioner of BPR's Office of Research; Eric L. Erickson, chief of BPR's bridge division; D. Kenneth Chacey, a Defense Department transportation official; Frank M. Mellinger, director, Ohio River Division Laboratories, Corps of Engineers; Robert C. Morrill, product division manager, Caterpillar Tractor Co.; and Charles E. Shumate, assistant chief engineer, Colorado Department of Highways.

The group went first to Moscow for briefings at the Ministry of Transport Construction and tours of highway projects and research facilities. Subsequently, it visited Leningrad; Kiev and Kharkov, Russia's Pittsburgh, in the Ukraine; Simferopol and Yalta in the Crimea, where a new four-lane highway is being built across the mountains to the Black Sea; Mineralhyye Vody in the northern Caucasus; Tiflis, capital of Georgia, which is in the vicinity of the Turkish and Iranian borders; Tashkent, a city east of the Caspian Sea; and Alma Ata, which is near the border of Red China. The Tashkent and Alma Ata regions have only recently been opened to foreign visitors.

The Russian delegation arrived in Washington October 7 and will remain in this country through October 30. Last week, it visited BPR headquarters and two research laboratories in Washington and viewed various Washington bridges and the circumferential highway now under construction, the Washington-Baltimore Parkway, the Baltimore Tunnel and then traveled to New York City via the Delaware River Bridge, the New Jersey Turnpike and the Lincoln Tunnel. Over the weekend, it toured bridges, tunnels and highways sponsored by the New York Port and Tri-Borough Bridge and Tunnel authorities.

This week's schedule carried the delegation to Albany and Buffalo, N. Y.; Chicago, the AASHO road test site at Ottawa, Ill., and the Caterpillar Tractor Co. plant at Joliet, Ill. On Sunday, the group moves into the West, viewing existing highways and construction projects at Boise, Idaho; Grand Junction, Colo.; Salt Lake City, Utah; and Denver. Next Thursday, the delegation travels south to Dallas, the Corps of Engineers' Waterways Experimental Station at Jackson, Miss., and Atlanta. It returns October 30 to Washington for a final session with BPR officials.

Stream Cleanup Progress Cussed,

SENATOR: Even in economic hardship cases, industrial polluters can't continue fouling the streams indefinitely.

ENGINEER: We rely too much on measuring the pollutant and too little on measuring the effect on the stream.

OFFICIAL: Pollution control research is too haphazard, with too little coordination between needs and efforts.

Enactment of the federal government's $630-million pollution control bill this year marks the beginning of a "crusade" in the U.S. against water pollution, but it's not enough, said Sen. Frank E. Moss (D., Utah) last week.

"This will go down as the year in which this country finally faced up to the gravity of its water pollution problems," he told an audience at the Water Pollution Control Federation's annual convention in Milwaukee. But we need additional legislation providing incentives for industry to build more waste treatment plants, he told newsmen.

Even where compulsory construction of waste treatment facilities might weaken the competitive position of a town's bread-and-butter industry, we can't continue to procrastinate, the Senator said. "If we must give up in hardship cases, we will simply continue to have polluted streams," he said.

Incentives would logically take the form of tax relief, Senator Moss indicated. And the system might well work to the particular benefit of areas or industries especially hard hit by the necessity to abate pollution. Such legislation could not single out regions or industries by name, he said, but conditions of eligibility for relief might be so constructed as to enable hardship cases to qualify more readily than others.

Senator Moss also predicted that a new Cabinet department for urban affairs—if the move to create one succeeds next session—will take over federal water pollution control activities. He would favor the transfer he said. The move from the Health, Education and Welfare Department would be simpler, he said, if pollution control were first separated from the Public Health Service within HEW. HEW Secretary Abraham Ribicoff is presently studying the advisability of such a move.

Despite the great extension of federal water pollution control authority and activity under the 1961 amendments to the Water Pollution Control Act, local and state autonomy will prevail in the field in the foreseeable future, Senator Moss said.

Thomas J. Powers, director of Dow Industrial Service, twitted the profession for "pollution control by inference." For example, "If we remove the phenol we infer that we also remove the odor," he declared. "If odor is an important characteristic, then measure odor," he urged.

Other "observational and subjective" characteristics that cause a waste to pollute, he said, are fish taste ("The only way to taste a fish is to eat it"), fish toxicity, effect on irrigated crops, and effect on water treatment processes.

Some listeners objected to Mr. Powers' omission of stream appearance.

"You can't sell vacationers on brown scummy water," said one.

"That's esthetics, a public relations problem, isn't it?" Mr. Powers replied.

In essence, however, Mr. Powers contended that the polluter usually knows only what the control agency demands that he know—suspended solids, biochemical oxygen demand, chlorine demand, dissolved oxygen—and very little of what he ought to know about how and to what extent the waste effluent affects the usefulness of the receiving water.

Effects are the only measure of pollution in some cases, he pointed out. For example, "The presence in water of some of the new herbicides is not readily indicated in any way other than by the fact that such water causes plants to die," he said.

Mr. Powers recommended this testing routine for effective pollution control: odor threshold, daily; fish taste threshold, once a month; fish toxicity, once a week; dissolved inorganic solids, daily; dissolved silver catalyzed dichromate, daily; phenol, daily; alkyl benzyl sulfonate, daily; carbon-chloroform extract, daily; effect on irrigated crops, once every July; color and turbidity, daily.

"The program outlined is not beyond the financial ability of any major polluter," he declared.

Sidney A. Berkowitz, assistant director of the Bureau of Sanitary Engineering, Florida State Board of Health, made a plea for coordination of research and other information gathering activities.

"The tremendous and increasing volume of data all too often is buried and not readily available or in the best form," he said. "When you don't have the information, you can't use it," he said. "Perhaps some answers to unsolved problems—even to problems not yet in evidence—lie dormant in research and other files," he suggested.

The suggestion drew support from the floor. E. Sherman Chase, partner in the consulting engineer firm of Metcalf & Eddy, said research conducted as far back as the 1880s and still available in libraries could throw light on some current problems.

Mr. Berkowitz reiterated a recommendation made nearly two years ago by the Conference of State and Interstate Water Pollution Control Administrators: Namely, that the Public Health Service serve as a clearing house for all technical information in the water pollution control field; and further that the Administrators' Conference and the Public Health Service devise machinery for closely coordinating, and communicating between, research needs and research efforts. PHS has the necessary broad authority under the amended Water Pollution Control Act, he said.

Mr. Berkowitz said devices or materials are too often presented for acceptance to a regulatory body that has too little information on which to base a decision. If the suggested coordinating group were functioning, the needed information would be developed and placed in the proper hands.

Warren J. Kaufman, University of

Discussed

California sanitary engineering professor, reported that the combination of preliminary clarification and ion exchange had proved capable in laboratory tests of decontaminating waste water containing strontium-90 radioactivity. The wastes treated were obtained as a byproduct of a study of the physiological effects of long-term strontium-90 exposure on 100 dogs. The final treatment incorporates sedimentation, flocculation, chlorination and filtration as pretreatment.

In another research paper, Gordon E. McCallum, chief of the Public Health Service's Division of Water Supply and Pollution Control, said that in PHS's year-old research program on advanced waste treatment, "physical or chemical separations appear attractive" in waste water treatment beyond the capabilities of conventional processes.

The five-day convention was the 34th for the 10,500-member Water Pollution Control Federation. Some 1,700 registered for the meeting. The technical program included more than 50 papers.

Federation Secretary Ralph Fuhrman reported that in the 22 months since the organization dropped the name Federation of Sewage & Industrial Wastes Associations in favor of the name Water Pollution Control Federation, component regional and state associations representing 75% of the individual membership have adopted corresponding name changes.

States Get Final Funds For Fiscal '63 Road Aid

The Commerce Department has apportioned to the states the remaining 25% of federal aid funds authorized for primary, secondary and urban ABC highways for the fiscal year beginning next July 1.

The new apportionment totals $231,250,000 and brings to $925,000,000 the amount of federal funds available for the ABC highways. Commerce Secretary Luther H. Hodges apportioned $693,750,000 for these projects on August 17, but withheld 25% of the total because the Post Office Department had not then computed the mileage or rural delivery and star mail routes as of June 30.

The figures, state by state, don't vary substantially from the estimated figures tabulated in ENR Sept. 7, p. 22.

The Commerce Department already has apportioned the full $2.4 billion authorized by Congress for the Interstate Highway System for the next fiscal year.

Maine's I-95 Wins Beauty Award

Maine's Interstate 95, a 24-mile stretch between Augusta and Fairfield, has been named the winner of PARADE magazine's first annual Scenic Highway Award.

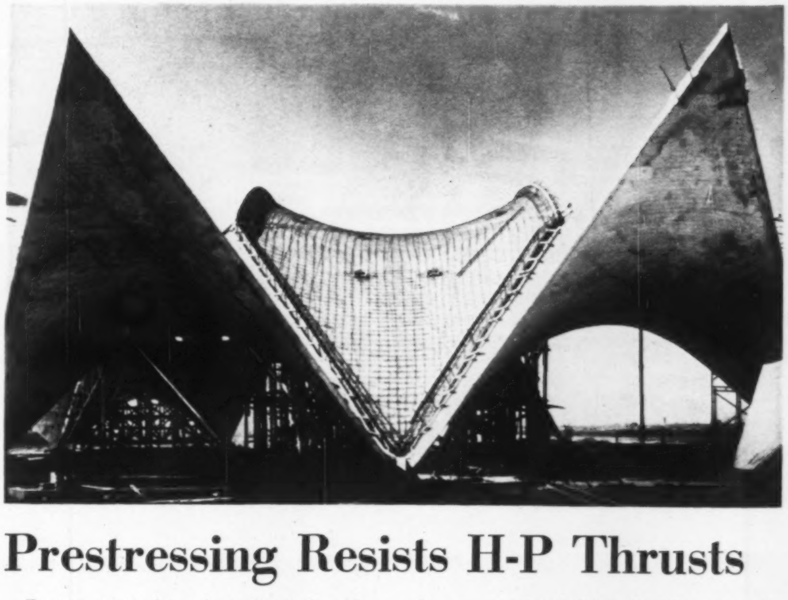
Passing through the birch and spruce-studded countryside near the Colby College Campus, it is the best example of a "driver's road," says the four-man awards panel. It fits into the natural terrain, preserving the landscape along the roadsides and in the median.

The award-winning State of Maine receives a plaque for the State Highway Commission. A scroll-citation is awarded to Robert C. Turber, the engineer of the highway's design.

Clarkeson Engineering Co. Inc., of Boston, Mass., were the consultants for more than half of the 24-mile highway. Together with Campbell and Aldrich, Boston architects, they designed the northly five-mile stretch.

The four judges of more than 300 entries were Ellis L. Armstrong, president of Better Highways Information Foundation; Dudley C. Bayliss, American Society of Landscape Architects; Kermit Rykken, American Automobile Association; and Jack Wood, American Civic and Planning Association.

Special mentions went to three other highways: Interstate 75 north of Indian River, Mich.; Interstate 93, Littleton to Bethlehem, N.H., and Interstate 89, Montpelier to Waterbury, Vt.

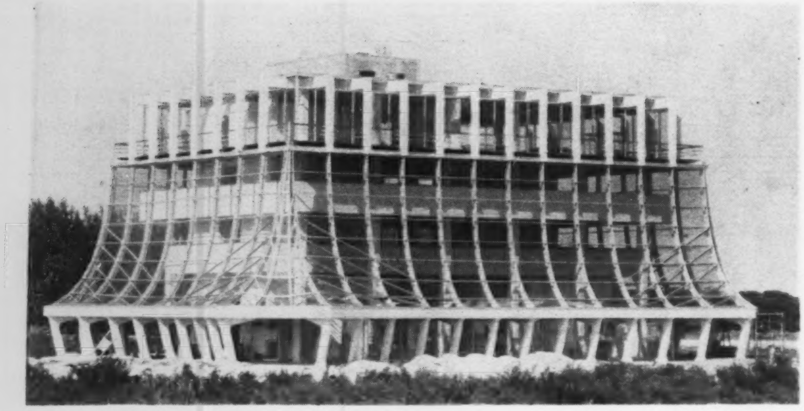


Prestressing Resists H-P Thrusts

Post-tensioned tendons, buried under the floor slab, resist the thrusts of hyperbolic-paraboloid shells roofing the Gault aviation hangar at Corpus Christi International Airport.

The largest column-free area in the 30,000-sq-ft building measures 150x150 ft. Unit cost of the 3-in.-thick, cast-in-place concrete shells is $1.50 per sq ft.

Braselton Construction Co. will soon complete construction, which began this past May. Architect is Joe Williams; structural engineer, Wally Wilkerson. Prescon Corp. furnished post-tensioning materials. All of the firms and individuals are from Corpus Christi.



Glass Curtain Encloses Building

Architecture on Florida's Canaveral peninsula, where men and missiles regularly depart for outer regions, is also moving farther out.

A new five-story reinforced concrete office building at Cocoa Beach, Fla., sports a glass-wall envelope sweeping out from an overhanging fourth-floor walkway to a colonnade roof at first floor level. Intermediate floors are set in from the curved glass wall.

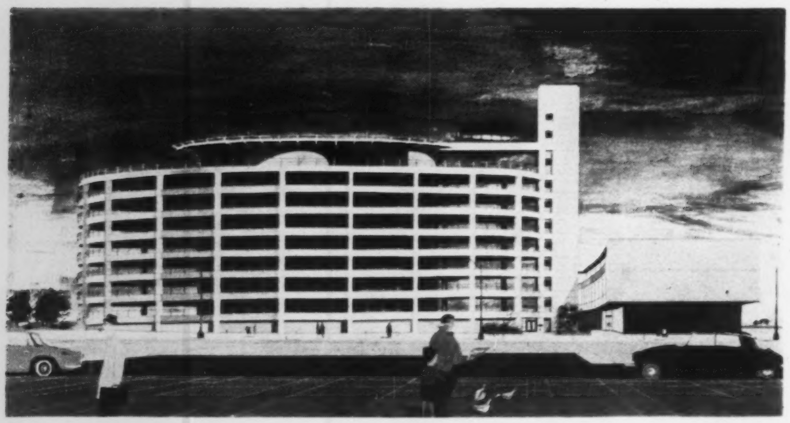
Window mullions are 6-in.-deep, aluminum wide-flange sections. Diagonal members framing between mullions produce truss action at the building corners and brace the wall for loads produced by 75-mph winds.

Concrete hangers, suspended from the ends of cantilever roof beams, support the overhanging fourth floor walkway.

Outward-sloping concrete columns with tapered beams form the colonnade at ground level.

Tom Winner Glass Co. got a $100,000 contract to cut and install 12,000 sq ft of ¼-in.-thick glass. J. S. Martin Construction Co. was general contractor. Total construction cost was $600,000.

Architect is Reginald C. Knight of Long Boat, Fla.; structural engineer is Prof. Alan Ozell of the University of Florida, Gainesville.



Heliport Tops Parking Garage

The newest heliport in Oakland, Calif., will be only a short elevator ride from a parking garage. Work has just started on the $2.5-million public parking garage and roof-top heliport for the Alameda County.

Continuous-ramp parking floors of prestressed concrete will carry traffic up the nine-story, oval-shaped building. The up ramps have a 2½% slope. Cars exit by way of a central spiral ramp.

Helicopters will land and take off from an oval-shaped deck with an 11,000-sq-ft port area, above the top parking floor. Three elevators will service the 900-car garage.

Van Bourg/Nakamura and Ratcliff & Ratcliff, of Berkeley, are associated architects, with H. J. Brunnier of San Francisco as structural engineer.

Texas Water Plan

A federal study commission last week released details of a $3-billion river basin development plan for Texas that may well be the forerunner of a nationwide system for unified, comprehensive development of national water and power projects proposed recently by President Kennedy (ENR July 27, p. 21).

The 50-year plan outlines a two-stage program for development of the surface and groundwater resources in a 165,000-sq-mi area—about 62% of the state's area. The study area consists of eight major river basins—the Neches, Trinity, Brazos, Colorado, Guadalupe, San Antonio, Nueces and San Jacinto. Paramount aim of the master plan is to meet the anticipated municipal and industrial water needs of the region to the year 2010.

The U. S. Study Commission was created by Act of Congress in 1958, to investigate, study and prepare a plan for development of the sprawling area's land and water resources through joint participation of federal, state and local governments and non-public entities.

The Commission suggests that work begin immediately on the first stage of the plan, which calls for construction of 30 major water storage reservoirs by 1975. Capital cost for first-stage construction is estimated at $526 million, not including interest during construction and based on 1959 dollars.

Major reservoir construction beyond 1975 through the year 2010 involves another 53 projects to cost an estimated $1.1 billion.

Another $1.3 billion worth of construction is outlined for 2,400 upstream structures aimed at flood prevention and sediment control, drainage improvement for 4 million acres, and major new water-distribution facilities.

Total outlay required over the 50-year period will run close to $4 billion when other related needs are considered, the Commission says. Additional construction entails local flood and hurricane protection, fish and wildlife conservation, pollution abatement, recreation, and coastal navigation improvements.

The Commission does not allocate these costs to federal, state and local governments, or between public and private interests, but it does say that each project in the plan should be developed locally "if it can be financed, constructed and operated more effectively and economically on that basis."

Although some areas of the country may face water shortages in the future, the Commission finds sufficient water available in the eight-basin area for at least the next 50 years. But the multi-billion-dollar program is a must to

Costs $3 Billion

maintain, store and distribute this water where it's needed, the Commission says.

Seventy-four of the 83 major reservoirs recommended in the plan are for water supply, although 27 also would have flood-control storage. The other nine impoundments include one for flood control only, two for groundwater recharge, one for sediment control and five for hydropower generation.

The Commission says the proposed reservoirs, together with those now in operation, under construction and in the advanced planning stage will provide a total surface water storage capacity of 66 million acre-ft. This would mean a dependable yield, including reusable water, of 12 million acre-ft annually during the worst drought on record. Total storage breaks down to 42 million acre-ft for water supply and sediment storage, 22 million acre-ft for flood control and almost 2.5 million acre-ft for power.

The report predicts area-wide requirements by the year 2010 at 16.6 million acre-ft annually compared with 7.2 million acre-ft actually used in 1958.

The national significance of the river basin study is evidenced by the "great importance to the nation" of the study area, which includes 80% of the population of Texas. The population is expected to grow more rapidly than the nation as a whole, "and as a consequence the increasing demand for water will be more urgent . . . than in many other parts of the country."

The Commission did not make detailed engineering studies or economic evaluations of the projects. These will be made by permanent agencies in line with their responsibilities under existing laws.

Under the law establishing the Commission, it goes out of existence within 90 days after its final report is submitted, but recommendations in the report call for creation of a federal-state interagency committee "to continue the cooperation and collaboration developed by the Commission."

This recommendation appears to dovetail with the Administration's proposed water resources legislation under which a series of river basin commissions would be appointed by the President on recommendation of the governors of states lying within the affected areas.

The Commission plan, which took 2½ years to complete at a cost of $2 million, goes to the President early next year for review and then to Congress. The plan must be approved by Congress and funds appropriated for the federal share of the cost of the various projects.

Around the World . . .

- **Set final tube section**—The contractor has sunk into place the last 300-ft-long prefabricated section of the second Norfolk-Portsmouth Tunnel. Remaining to be built before the tunnel can be opened in August, 1962, is a four-lane access highway on the Portsmouth side of the Elizabeth River.

- **Hotbed in bedrock**—The Atomic Energy Commission is making deep test borings in South Carolina bedrock to check the potential of underground caverns for storing "hot" nuclear wastes from the Savannah River plant. First test borings, 1,900 ft deep, have brought up core samples that make the project look promising.

- **Today, two stories; manana?**—High real estate taxes may postpone construction of what is planned as a record-height building for Peru. In fact, 26 stories of a 28-story building in Lima may never get built. Work is in progress on the 380 x 150-ft basement and two lower floors of the office building for Banco Wiese, Limitado. This first stage of construction is expected to take three years.

- **R-O-W for D. C. transit?**—As a first step in developing a rapid transit system for the Washington, D. C., metropolitan area, the National Capital Transportation Agency has asked Congress for authority to acquire land for express transit lines, stations and parking lots along three major highways. Estimated cost is $2.5 million. All three highways are now under construction.

- **That sinking feeling**—The Japanese government has urged 13 natural gas producers around Niigata, Honshu, to reduce production by one-fourth. By drawing a million cu yd of natural gas a day the companies are causing serious soil subsidence around the port city. This is the third plea by the government since 1959.

- **In the swim**—Older U. S. hotels have started to fight back against motels by adding pools. Usually, the only space available is on the roof. So the hotels install aluminum pools to keep weight down.

- **High cost of living**—Danny Thomas, TV and movie star, plans construction of a $119,000 fallout shelter at Beaumont, Calif. It will have 6,487 sq ft of space.

- **AIA 1962 competition**—Deadline for entering any building completed after 1956 in the American Institute of Architects 1962 Honors Award Program is Nov. 28, 1961. All classes of buildings designed by U. S. registered architects are eligible. Write the AIA, 1735 New York Avenue, N.W., Washington 6, D.C.

- **West Coast reactor planned**—San Diego Gas & Electric Co. and Southern California Edison Co. will join forces to build and operate a 375,000-kw nuclear-powered generating station. The $78-million plant—if approved by the Atomic Energy Commission—will be a closed-cycle water reactor.

- **Spanish pipeline**—The Spanish government plans to install a 160-mile pipeline between Malaga on the Mediterranean Coast and the oil refinery at Puertollano. Preliminary plans call for a 14-in.-dia pipe to handle 2.5 million tons of crude oil per year. Cost will be $10 million.

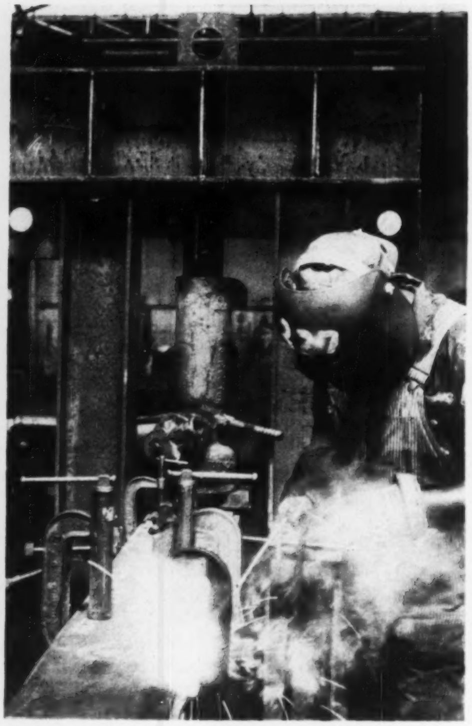
- **Iron Gate Dam half done**—Pacific Power & Light Co.'s Iron Gate Dam on the Klamath River in northern California is 50% complete. The 173-ft-high earthfill is a re-regulating facility for PP&L's upstream hydroelectric plants. The $7.5-million project will have a single 18,000-kw generating unit but is primarily aimed at improving aquatic life.

- **Pipeline proposal**—Transcontinental Gas Pipe Line Corp. has applied to the FPC for a certificate to construct $49 million worth of new facilities to increase service to the New York-Philadelphia area. Proposed construction comprises 188 miles of 36-in.-dia main line pipe and 13 compressor stations totaling 46,800 compression hp.

- **The rain in Maine**—Two U. S. Department of Agriculture soil scientists have converted a conventional silo into a rainfall simulator at the University of Maine. Eliot Epstein and Walter Grant will use the simulator to measure the amount of runoff and the amount of water that actually percolates into the soil.

- **Colorful confinement**—You should paint fallout-shelter walls light green or light blue. These colors, says the National Paint, Varnish and Lacquer Association, are relaxing, make the shelter seem larger and reflect ample light.

Jack applies prestress load to top cover plate and beam.



Under load, plate is tack welded.

Prestressing Steel Stringers

Structural steel may move strongly into the field of short-span continuous highway bridges because of a 240-ft structure now under construction near Des Moines by the Iowa State Highway Commission.

The three-span continuous bridge contains prestressed steel stringers comprising A36 wide-flange sections with T-1 steel cover plates for prestressing.

Designers estimate savings in weight resulting from prestressing to be as much as 25%, as compared with a nonprestressed continuous steel bridge of comparable length.

Four lines of stringers at 9 ft 8 in. c-c carry a 30-ft roadway and 3-ft curbs over a small stream on a 30-deg skew. Exterior stringers are 30-in. beams weighing 108 lb per ft. Interior stringers are 33-in., 130-lb beams. Cover plates range from 9x⅜ in. to 12x¾ in. Span lengths are 73 ft 3 in., 93 ft 6 in., 73 ft 3 in. Welded shear lugs provide composite action between the reinforced concrete deck and stringers.

• **Design**—Prestressing loads the beams to produce stresses opposite in sense to those produced by structural loads. In this case, high-strength steel cover plates are welded to a deflected beam during fabrication and the load removed. Net effect is to retain a portion of the applied stresses in the beam, and to induce a stress of opposite sense in the cover plates.

As in any three-span continuous bridge, the stringers are spliced at the points of contraflexure. The general contractor, W. H. Herberger, Humboldt, Iowa, will make field splices with high-strength bolts, using A36 steel for all splice material except fillers.

For each line of stringers there are two 51-ft 3-in. end sections, two 44-ft pier sections and one 49-ft 6-in. center section, a total of 20 prestressed stringer sections.

Specifications require the cover plates of T-1 steel to have an ultimate tensile strength of 115,000 to 135,000 psi and a minimum yield strength of 100,000 psi. Allowable design tensile stress is 54,000 psi.

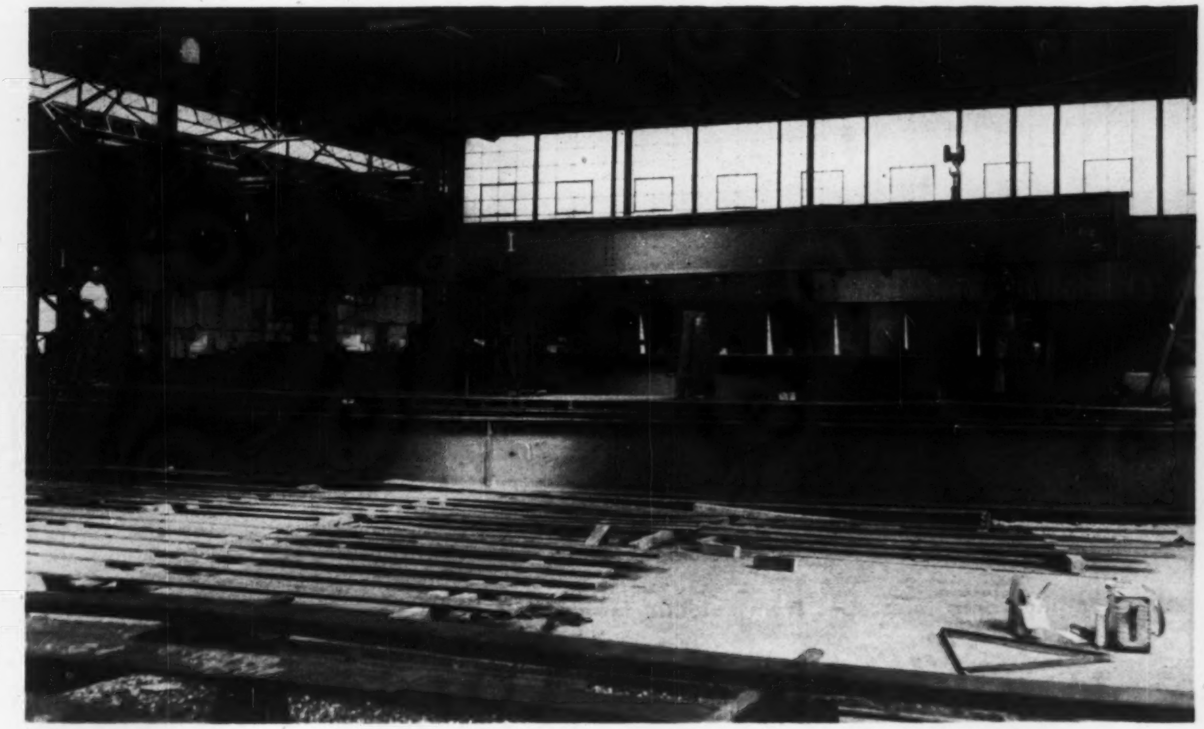
The rolled beams of A36 steel must have an ultimate strength of 60,000 to 80,000 psi, and a yield strength of 36,000 psi. Design stress is 20,000 psi.

Calculated stresses in the end span of an exterior beam under full prestress are 30,550 psi tension in the top flange and an equal amount of compression in the bottom flange. When the prestress is released and the combined dead load, live load and impact stresses are added, the final calculated stresses are 8,300 psi compression in the top flange; 16,580 psi tension in the bottom flange; and 48,250 psi tension in the cover plate welded to the bottom flange.

Similarly, the interior beams over the piers are prestressed to 31,800 psi compression in the top cover plate and 31,800 psi tension in the bottom cover plate. Final design stresses including residual prestress, dead load, live load and impact, are 54,250 psi tension in the top flange cover plate and 19,690 psi tension in the top flange. Final calculated stresses in the bottom cover plate and bottom flange are 54,250 psi compression and 19,690 psi compression, respectively.

The bridge is designed for an H20-S16 live load according to the AASHO specifications, series 1957, plus 19 lb per sq ft of roadway for future wearing surface.

Both flanges of the sections of stringers over the piers are cover-plated, the top cover plate being welded to the tension flange first. In these negative moment areas, the steel section alone is designed to resist the full dead and live load moments.



Beams for a three-span, continuous highway bridge have prestress built in by cover plates.

Reduces Bridge Weight by 25%

End sections and center sections of the stringers have cover plates on the bottom flange only, since the 7-in. concrete roadway slab acts as the compression flange in the positive moment area. These sections are prestressed in an inverted position, then turned over when erected.

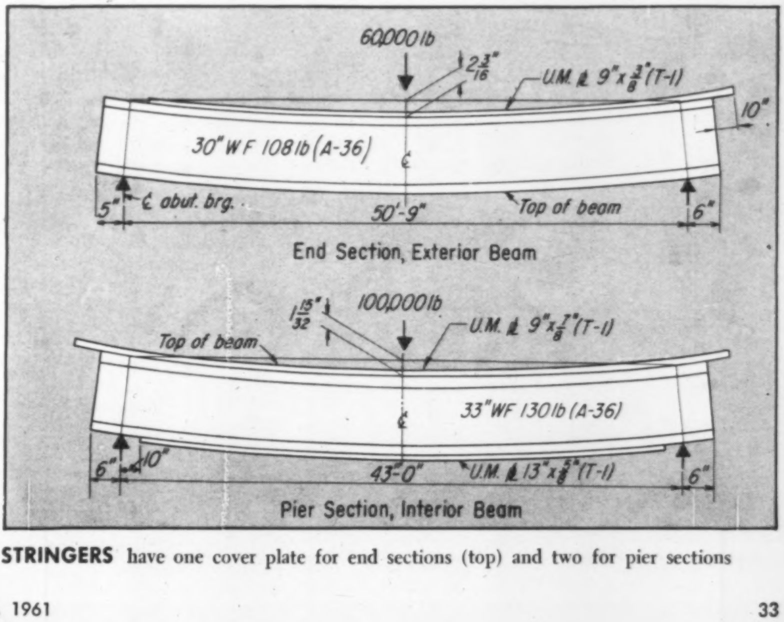
• **Stressing procedure**—The fabricator—Pittsburgh-Des Moines Steel Co.—prestresses each beam by placing it on a platform and jacking to predetermined deflections. Temporary stiffeners are added as necessary at jacking and bearing points. Lateral supports at the jacking point prevent lateral buckling.

The jacking load, at center of span, varies from 60,000 lb for an end section of an exterior stringer, to 100,000 lb for a section of an interior stringer over a pier. Initial deflections under these two loads are $2\frac{3}{16}$ in. and $1\frac{15}{32}$ in., respectively. Estimated deflections after release of jacking load are $\frac{7}{16}$ in. and $\frac{11}{16}$ in., respectively.

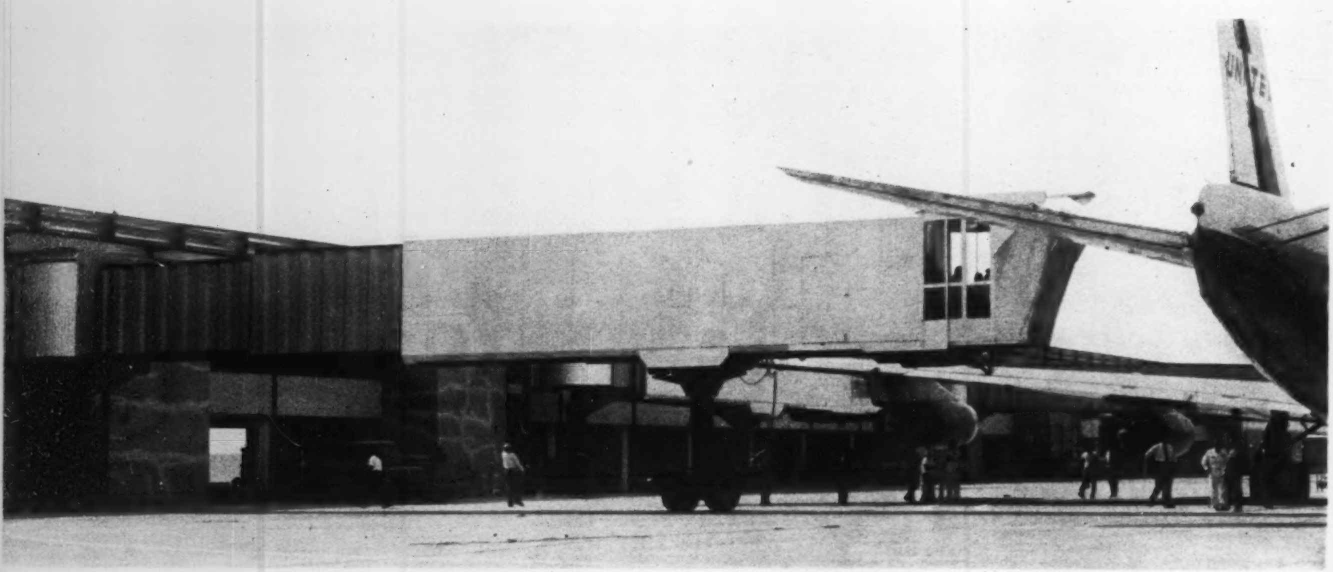
Welders tack the cover plates while the beam is deflected under the jacking load. Experiments on prototype beams last year showed that full welding under load produced objectionable distortions.

Tack welds are $\frac{1}{8}$-in. and $\frac{3}{16}$-in. fillets 4 in. long at 18 in. c-c, with continuous welds across the ends of the cover plates. After the prestressing load is released the cover plates on the pier sections are welded to the top and bottom flanges of the beam with $\frac{5}{16}$-in. continuous fillets. Continuous $\frac{3}{16}$-in. fillet welds are used on the end and center sections.

P. F. Barnard of the highway commission's staff designed the bridge assisted by Ramon Upsahl and Domingo Silvero. David J. Staff is resident engineer for the state and Earl Slama is job superintendent for the contractor.

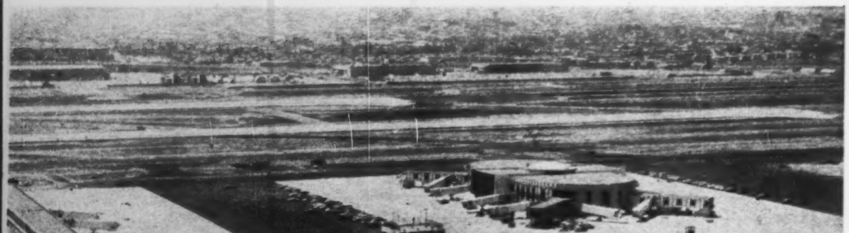

60,000 lb
$2\frac{3}{16}$"
U.M. ℓ 9" x $\frac{3}{8}$" (T-1)
10"
30" WF 108 lb (A-36)
℄
5"
℄ abut. brg.
50'-9"
Top of beam
6"
End Section, Exterior Beam
$1\frac{15}{32}$"
100,000 lb
U.M. ℓ 9" x $\frac{7}{8}$" (T-1)
Top of beam
33" WF 130 lb (A-36)
℄
6"
10"
43'-0"
U.M. ℓ 13" x $\frac{5}{8}$" (T-1)
6"
Pier Section, Interior Beam

STRINGERS have one cover plate for end sections (top) and two for pier sections



Loading ramp telescopes from satellite terminal as first passengers open the Los Angeles

New Airport Offers Jet Parking



WORLD'S TALLEST control tower is shaded with vertical aluminum louvers.

Los Angeles' long needed jet-age airport is open for business. Although only one airline now uses the 3,000-acre International Airport, 20 airlines are expected to roost at the $70-million terminal by year's end.

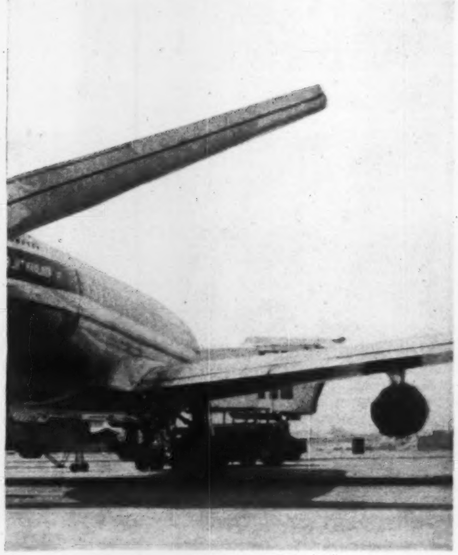
The seven completed structures on the 265-acre terminal site include United Airlines' two arrival-and-departure buildings (satellites Nos. 7 and 8) and its ticketing building (ticket No. 7), the main control tower, the utility plant and two central services buildings.

Also completed is the 2,000-ft extension of runway 25L, the new 8,925-ft east-west runway and taxiway, aprons for four arrival buildings, and most of the automobile ramps. The preparatory work for the site was completed in 1959, at a cost of $5.8 million. It involved about 4 million cu yd of earth moving.

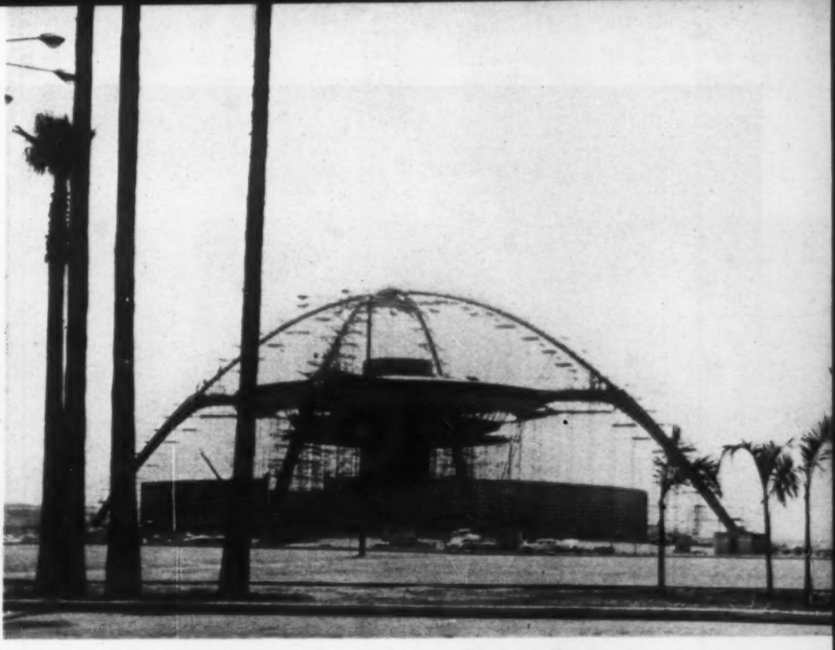
Nearly completed is the world's largest parking lot, which will hold 5,000 cars by the end of this year and about 8,000 when the second level is added at some future date.

Dubbed the Jet-Age Terminal, Los Angeles' new International Airport is located southwest of the old terminal and uses existing runways. The new facilities will be about five times larger than the old. The new combines a repetitive external building design with a decentralized plan (see drawing). Uncongested, speedy passenger and plane movements will be the primary benefit of the decentralization.

Passengers will park cars in the centralized lots, proceed to ticketing build-



International Airport.



Arches of airport's theme structure will envelop restaurant.

Around All Terminal Buildings

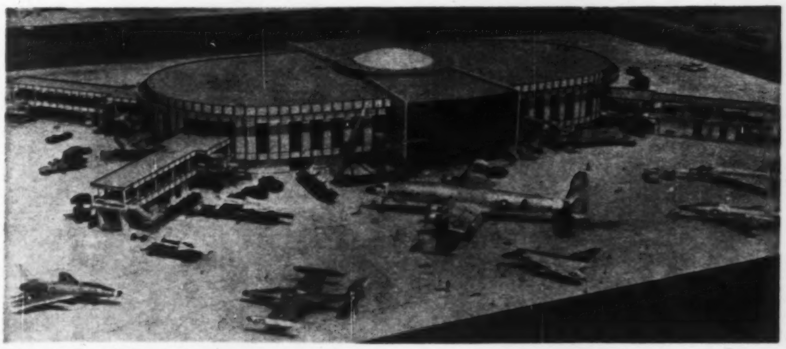
ings and—after they are checked in—cross underground to the satellite buildings to meet their plane. Thanks to the underground access, each satellite can handle jets around its entire periphery. Thus 10 planes can load simultaneously at all satellites, except No. 8. Six of the steel-framed satellites will have their own restaurants. All the elliptical satellites will have four levels, with 108,000 sq ft on each level. Most of the ticketing buildings will initially have only one floor, some two. But all have foundations for three levels.

Sharing the limelight with the record-sized parking lot is the world's tallest control tower, 172 ft high. Steel framed, the 12-story, $1.4-million tower has vertical aluminum louvers on four sides to control sunlight.

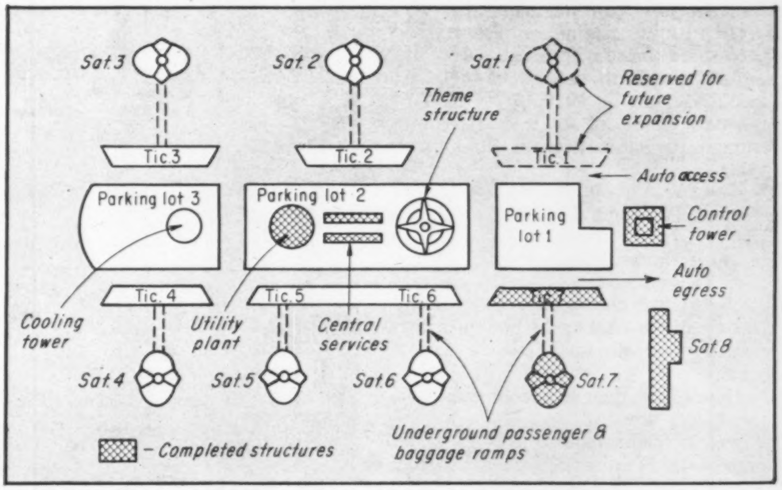
Other significant features of the airport include the nearly completed theme structure (ENR Jan. 5, p. 24) and the utility building. Made of reinforced concrete, the circular utility building is 30 ft high and 130 ft in diameter. It supplies heat and air conditioning for the entire terminal from three boilers that produce over 66 million Btu per hour and a refrigeration system of 3,400 tons.

In the future, a $3.4-million, overhead transportation system is slated to shuttle passengers between ticketing buildings and the administration offices attached to the control tower.

A five-mile monorail system linking the airport with the harbor and the San Diego freeways has also been proposed and is under study.



ELLIPTICAL SATELLITES have stationary ramps at ends and glass walls at center.


Sat.3
Sat.2
Sat.1
Theme structure
Reserved for future expansion
Tic.3
Tic.2
Tic.1
Auto access
Parking lot 3
Parking lot 2
Parking lot 1
Control tower
Auto egress
Tic.4
Tic.5
Tic.6
Tic.7
Cooling tower
Utility plant
Central services
Sat.8
Sat.4
Sat.5
Sat.6
Sat.7
▨ – Completed structures
Underground passenger & baggage ramps

UNDERGROUND ACCESS to satellites frees aprons for jet parking on all sides.

Traveling plant lays cold mixture rapidly on heavy-duty rural road in Douglas County, Ore.

New Emulsion Speeds Road-Mix Paving

A new cationic emulsion is making it possible for Douglas County, Ore., to put down a cold-mixed asphaltic road that can be compacted and used by heavy trucks almost immediately.

Previously the county had been producing a surface that had to cure at least overnight before it could be compacted. Assistant County Engineer Harry Morrill says the new paving process permits them to do in two days what used to take three—and they save $4 per ton of binder to boot.

The new grade of cationic emulsion is American Bitumuls' SM-K. It differs from other cationic emulsions in its ability to mix with fine aggregate.

Up to now, cationic emulsions have been used mostly for seal coats and surface treatments because of their fast set (ENR July 2, 1959, p. 44). With the new emulsion, set is delayed long enough to get it through the mixing paver.

Douglas County roads have to be strong; it's logging country, and the traffic is heavy. Road mixes often do not have the needed structural strength. Hot-mix asphaltic concrete would give strength, but the county can't afford the expensive hauling of hot mix from central plants to small jobs in remote areas.

Here's how their new cold mix pavement goes down:

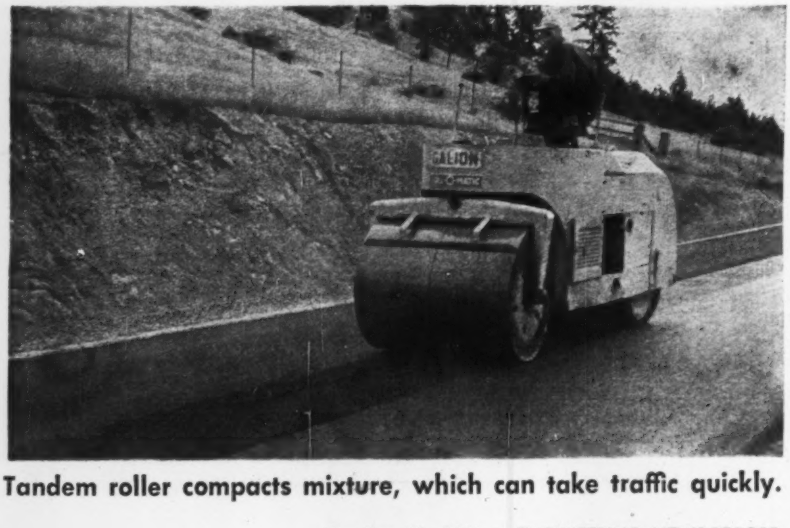
Specifications require a 6- to 12-in. base course of minus 2½-in. rock. A 3-in. leveling course of minus ¾-in. material tops the base. Before surfacing, workmen prime the leveling course with MC-2 at the rate of 0.45 gal per sq yd. A light spread of ½- to ¾-in. aggregate blots the prime. Then the 20-ft-wide, 2-in. cold mix surface course goes down, is rolled and the road is opened to traffic.

A finishing step, sometimes taken at a later date, is application of a seal coat. Another cationic emulsion (RS-K) is applied at a rate of 0.35 gal per sq yd and covered with ¼- to ½-in. chips at 25 lb per sq yd. The seal coat normally is applied sometime before the winter rains commence.

County forces paved a 2½-mile stretch of road this way during the summer as a trial, and they've done other stretches since.

Formerly, their method was to use a mixture of minus ¾-in. aggregate and cut-back asphalt (RC-3) plus an anti-strip additive. Aggregate and binder were mixed and placed by a traveling plant; the asphalt was heated slightly, but not the aggregate. The surface had to cure at least overnight before compaction.

Douglas County uses ungraded pit-run aggregate, all passing a ¾-in. screen. With previously developed cationic emulsions the aggregate had to be screened and graded so that minimum size would be about ¼-in.



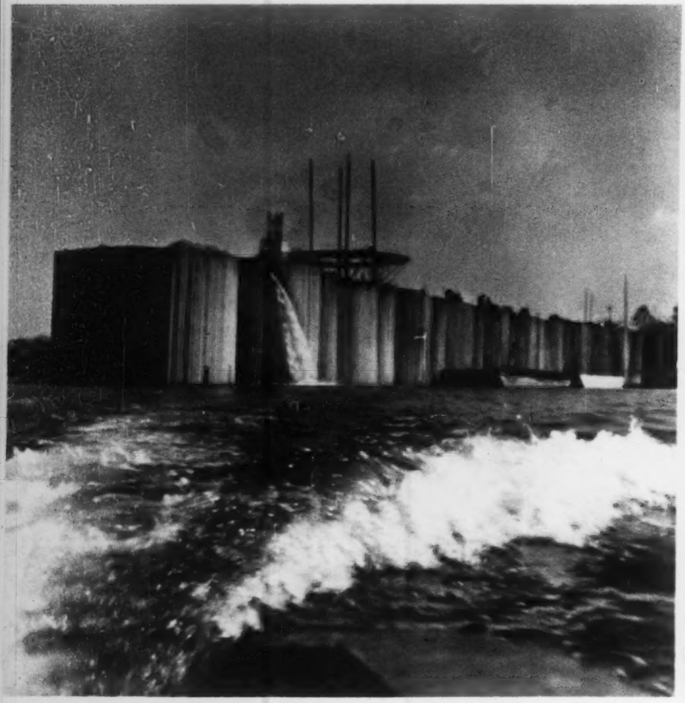
Tandem roller compacts mixture, which can take traffic quickly.

The Fabulous Ohio River Development

see story on following three pages . . . . . .

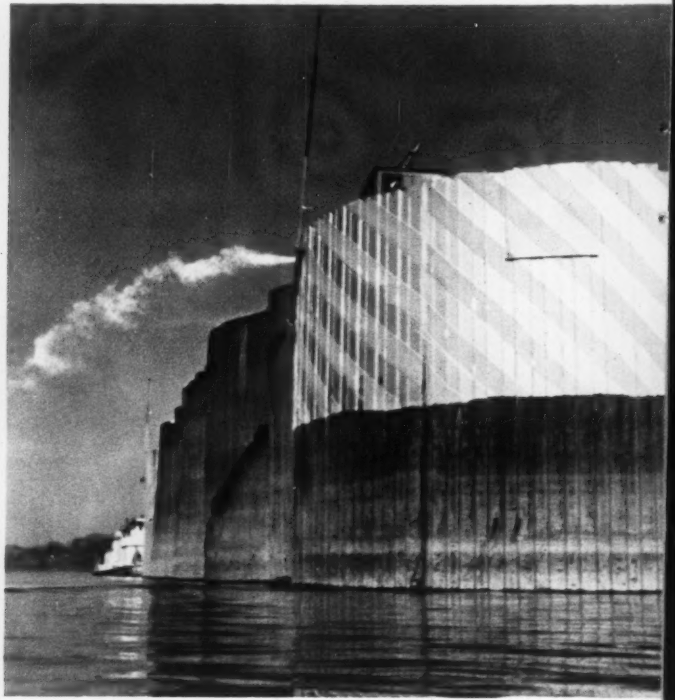
LOUISVILLE, KY.

Reconstruction of Lock No. 41 located 607 miles below Pittsburgh. This is a complicated job involving four cofferdams: Two main cofferdams, upstream and downstream and two guardwall cofferdams upstream and downstream. A total of 99 cells was constructed using 10,850 tons of USS MP 101 and MP 112 Piling in various lengths from 24 feet to 60 feet. General contractor—Hardaway Contracting Co., Columbus, Ga., under supervision of Louisville District, U. S. Corps of Engineers.



MARKLAND, IND.

Lock and Dam No. 39. Located 531.5 miles below Pittsburgh. Will replace five outmoded navigational facilities. One main lock 1,200 feet long by 110 feet wide and one auxiliary lock 600 feet x 110 feet. Dam gates are 42 feet high by 100 feet long. Lock cofferdam is 3,250 feet long, 50 feet high and contains 8,000 tons of USS Steel Sheet Piling. Lock construction recently completed by Dravo Corporation, Pittsburgh, Pa., under supervision of Louisville District, U. S. Corps of Engineers.



Between Greenup and Louisville . . . Four huge locks and

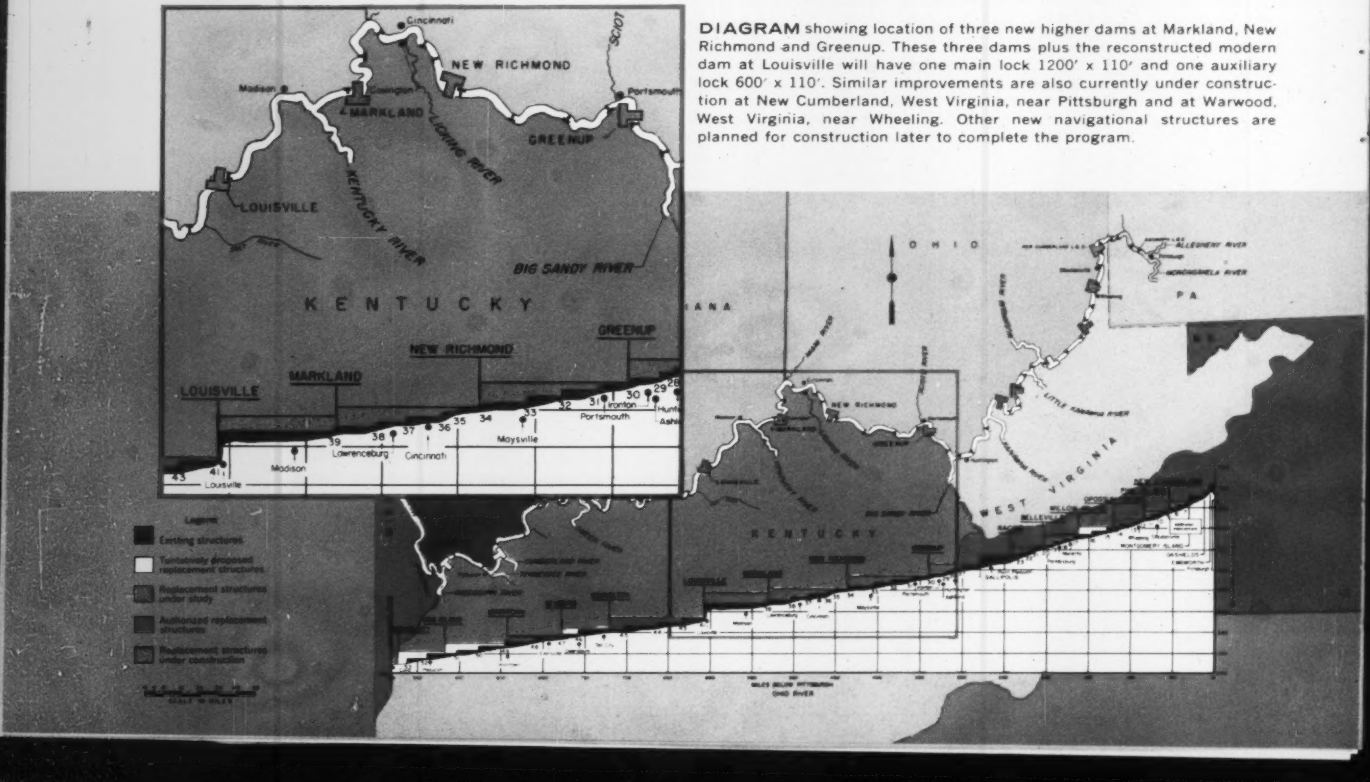

Cincinnati
SCIOT
NEW RICHMOND
Madison
Covington
Portsmouth
MARKLAND
LICKING RIVER
GREENUP
LOUISVILLE
KENTUCKY RIVER
BIG SANDY RIVER
K E N T U C K Y
GREENUP
NEW RICHMOND
MARKLAND
LOUISVILLE
28
29
30
31
32
33
34
35
36
37
38
39
41
43
Ironton
Portsmouth
Maysville
Lawrenceburg
Cincinnati
Madison
Louisville
OHIO
ALLEGHENY RIVER
MONONGAHELA RIVER
PA
LITTLE KANAWHA RIVER
WEST VIRGINIA
KANAWHA RIVER
NEW RICHMOND
KENTUCKY
MILES BELOW PITTSBURGH
OHIO RIVER
Legend
■ Existing structures
□ Tentatively proposed replacement structures
▨ Replacement structures under study
▨ Authorized replacement structures
▨ Replacement structures under construction
SCALE IN MILES

DIAGRAM showing location of three new higher dams at Markland, New Richmond and Greenup. These three dams plus the reconstructed modern dam at Louisville will have one main lock 1200′ x 110′ and one auxiliary lock 600′ x 110′. Similar improvements are also currently under construction at New Cumberland, West Virginia, near Pittsburgh and at Warwood, West Virginia, near Wheeling. Other new navigational structures are planned for construction later to complete the program.

NEW RICHMOND, OHIO

Lock and Dam No. 34. Located 436.2 miles below Pittsburgh. Will replace four older structures. Two locks same size as those at Markland but the dam gates will be only 37 feet high. The lock cofferdam contains 13,465 tons of steel sheet piling and has a total of 56 cells. Maximum length of piling 84 feet. Cofferdam construction by Peter Kiewit, Omaha, Neb.; lock construction by Groves Ventures Company, Minneapolis, Minnesota, under supervision of Huntington, W. Va. District, U. S. Corps of Engineers.

GREENUP, KY.

Lock and Dam No. 30. Located 341 miles below Pittsburgh. Replaces four older structures. Two locks of the same size as Markland. Dam gates will be 37 feet high. The lock structure has been completed by Atkinson-United Companies. A total of 10,194 tons of steel sheet piling was used. Much of this was USS Steel. Lock chamber cofferdam by Dravo Corporation of Pittsburgh, dam and cofferdam by Massman Construction Co., Kansas City, Mo., under supervision of Huntington, W. Va. District, U. S. Corps of Engineers.

dams will replace 14 outmoded structures

USS Steel Sheet Piling is used in the cofferdams

The growing industrial development in the Ohio River Valley has boosted river traffic to more than ten times what it was 30 years ago. Today it is more than 17 billion ton-miles. Barge tows are longer and many have to be broken up every time they go through the old 600-foot locks.

To speed traffic, the billion dollar Ohio River navigation replacement and improvement program is now in full swing under the direction of the Ohio River Division Office of the Corps of Engineers at Cincinnati, Ohio.

The entire program includes replacement of the present 46 navigational structures with 19 modern facilities. It is estimated that when the program is completed, about 1975, two full days' locking time will be cut off the average running time from Pittsburgh, Pa., where the Ohio River begins, to Cairo, Illinois, where it enters the Mississippi.

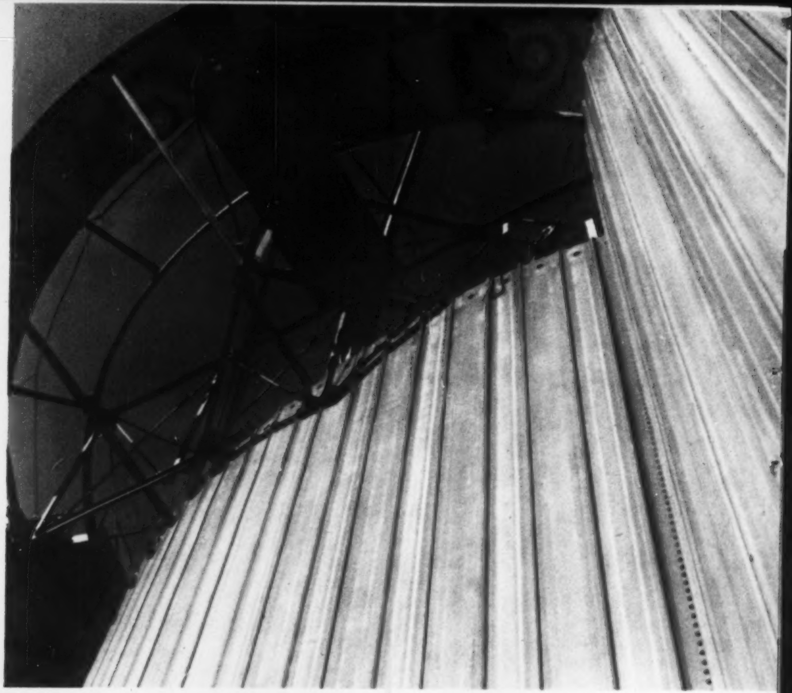
In this stretch of river, between Huntington, W. Va., and Louisville, Ky., huge new locks 1200 feet long and 110 feet wide are going in at Greenup, Ky., New Richmond, Ohio, Markland, Ind., and Louisville, Ky. Three new non-navigable dams, built higher to maintain the nine-foot minimum navigable depth, will take the place of 13 old structures in this 300-mile stretch.

One of the first major jobs is to build steel sheet piling cofferdams to dry up the work areas. Thousands of tons of U. S. Steel Sheet Piling are being used in these temporary cofferdams. A large quantity of USS Sheet Piling is also incorporated into the permanent lock structures. U. S. Steel's production capacity insures ready availability of all popular piling sections and makes possible quicker deliveries to each of the job sites. This capacity is advantageously located to provide shipment by various means—in this case by economical water transportation. In addition to steel sheet piling, hundreds of tons of USS Steel H-Piles are being used to support major portions of the structures including the guard and guide walls and in some cases the dam structures.

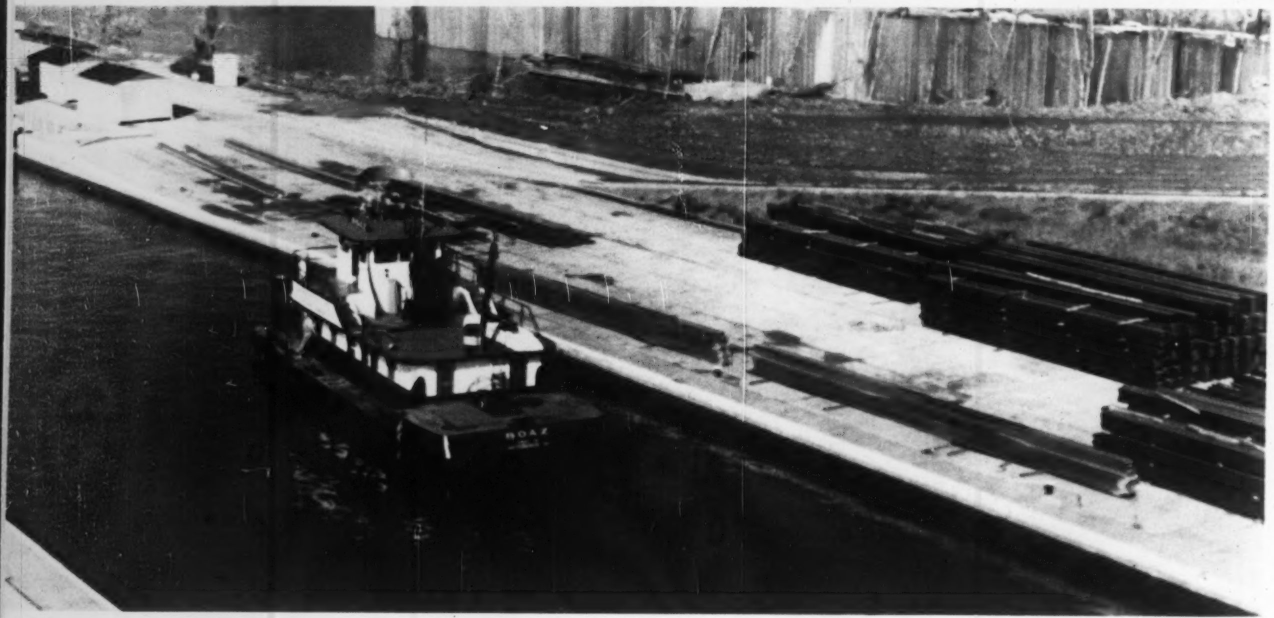
United States Steel Corporation—Pittsburgh
Columbia-Geneva Steel—San Francisco
Tennessee Coal & Iron—Fairfield, Alabama
United States Steel Export Company

United States Steel

Additional information on next page . . .



Building a cell at Louisville using a template to assure correct diameter.



USS Steel Sheet Piling stacked and ready for use after delivery by barge to Louisville.

Quick deliveries on USS Steel Piling

U.S. Steel's large production facilities and close attention to customer's needs have made possible "on-time" deliveries even in remote sections of the country. When you want any type of piling in a hurry—Steel Sheet Piling or Steel H-Piles—call the United States Steel office near you. For technical information, write United States Steel, 525 William Penn Place, Pittsburgh 30, Pa.

USS is a registered trademark

United States Steel Corporation—Pittsburgh
Columbia-Geneva Steel—San Francisco
Tennessee Coal & Iron—Fairfield, Alabama
United States Steel Export Company

United States Steel

Warm water from abandoned mine defies deep frost line en route to city mains.

Leadville Strikes a New Bonanza

By Kenneth R. Wright

The fabled gold and silver town of Leadville, Colo., has struck it rich again, in an old abandoned mine. But this time, the lode is water, not precious metal. What's more, it is warm water, comparatively speaking, a highly esteemed commodity in a town troubled by frozen mains every winter.

Leadville is some 10,000 ft up in the Rocky Mountains—a position that puts its frost line 10 ft below ground and demands expensive excavation to avoid frozen pipelines. For years the Leadville Water Co. has been bleeding pipelines, flushing fire hydrants daily, and even injecting live steam into water mains to prevent freezing from January to April. But recently, the utility put "for sale" signs on some of its steam boilers.

Several years ago, the water company called in its consulting engineers to find more water to meet growing demands. They investigated stream beds, old mines, drainage tunnels and even old lake beds for a pure and sufficient source of water.

• Tepid treasure—Their search paid off one day while making investigations two miles north of the city. Here they found an old mine tunnel from which water flowed at a rate of 600 gallons per minute. Chemical tests confirmed the appearance—it was crystal clear and pure, and also relatively soft. Its most unusual characteristic, though, was that in the dead of winter it had a temperature of 50 F, which caused billowing clouds of vapor to rise in the frigid mountain air.

This warm water was worth more to the company than if the tunnel had led to a silver strike. With a go-ahead signal from the water company, consulting engineers designed a system to bring the water to Leadville.

They had two basic problems:

- How to collect the water from the tunnel without contamination and heat loss?
- How deep to lay a two-mile cast-iron pipeline to minimize the heat loss while keeping excavation costs to a minimum?

They solved the first problem by designing a reinforced concrete collection box to sit 6 ft inside of the tunnel portal, completely vandal proof in all respects.

Data on soil temperature measurements indicated a probable temperature gradient below the frost line of two degrees per foot of depth. They also indicated a maximum frost depth in the forest (where most of the pipeline would be located) of about 3 ft in the early winter. Later in the winter, however, when a snow pack of 3 ft accumulated, the ground surface temperature would rise to 32 F, indication that there would be no frost line.

Economics dictated a total ground cover of 7 ft over the pipeline, with a pipe bedding of 6 in. of sand below the pipe, extending to 12 in. above the pipe. Besides protecting the pipe, the sand drained moisture away from the pipe, thus providing air-filled interstices with some insulation value.

The only season of operation so far showed a total heat loss to the flowing 50F water of only ½ degree of temperature between the tunnel and the delivery point in Leadville. The warm water circulating through the mains has successfully beaten the Leadville frost line.

• Heat for fire hydrants—Simultaneous with their search for a new source of

---

***Mr. Wright** heads Wright Water Engineers, consultants for the Leadville Water Co. He designed the new water source while a partner in the Denver engineering firm of Wheeler and Wright.*

Contractor, Fuel Economy and Engineering Company, General Construction Division

70 minutes total time to assemble, erect and strip gang section

Yes, that's right, just 70 minutes. Five men plus a crane, assembled, erected and stripped a 45 x 13 ft Symons steel-ply form gang section. The job—a rectangular fire wall at the Fox Lake Station of Interstate Power Company at Sherburn, Minnesota.

Another interesting aspect of the job is that the walls are battered from 16 inches at the bottom to eight inches at the top with joints every 45 feet. The rectangular wall is 440 x 180 ft and encloses two 55,000 barrel fuel tanks.

Symons Forms can be purchased outright or rented with purchase option. **Symons Clamp & Mfg. Co., 4265 Diversey Avenue, Dept. K-1, Chicago 39, Illinois.**

WORLD'S LEADING MANUFACTURER OF ADVANCED DESIGN PNEUMATIC PLACING EQUIPMENT

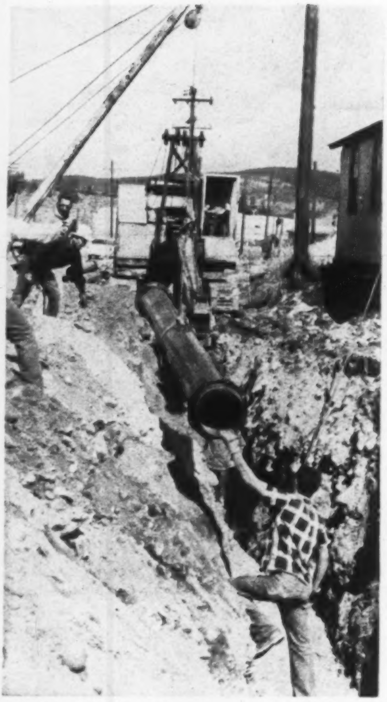
WHEN PLACING
CONCRETE
GET RIGHT TO THE POINT!
with the
AIRPLACO® "AIR EXTRUSION
METHOD"

Users of AIRPLACO Concrete Placers tell us that this versatile piece of equipment can make the difference between profit or loss on many jobs. Distributing structural concrete to difficult pours, for tunnel lining, pressure grouting, blowing sand or pea gravel backfill, or a host of other jobs, the AIRPLACO Concrete Placer does it faster, easier, with higher production rates for more profit.

JUST LET US KNOW when you have a concrete problem. Our Field Engineers can draw upon many years of experience on many jobs to help you cut your concrete costs. Just write, wire or phone. Obligation? Of course not!

AIRPLACO
CONCRETE PLACERS
MEAN LOWER
COST CONCRETE

AIRPLACO **AIR PLACEMENT EQUIPMENT CO.**
1008 WEST 25TH ST • KANSAS CITY 8, MO.



WARM WATER transmission line is 12-in. cast iron pipe bedded in sand.

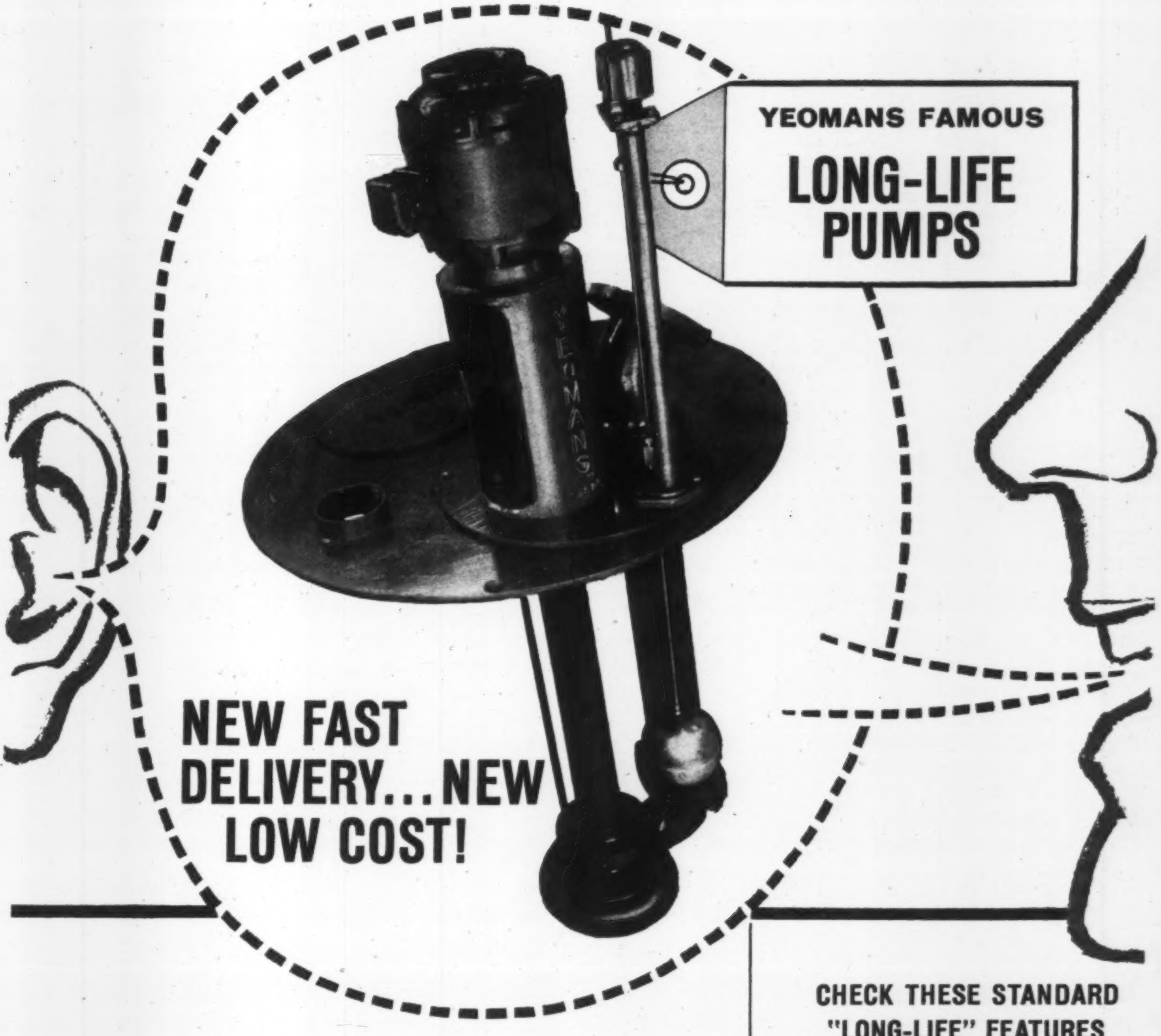
water, the engineers also sought a solution to the problem of freezing fire hydrant laterals. An investigation showed that the frost line went as deep as 10 or 11 ft under pavements kept clear of snow; and that the heat loss from the laterals varied with pipe diameter and length, type of backfill, and moisture surrounding the pipe.

They determined that either thermostatically-controlled electric heating cables would keep the water in the laterals warm, or pitot-tube arrangements would create artificial circulation. The engineers decided to experiment with the heating cables.

Computations showed that the cables would have to produce about 6,600 calories an hour for 20 ft of 6-in. lateral to keep the pipe from freezing during critical periods.

Based on these determinations, specifications were written for heating cables to produce 7.5 watts per foot and 12 watts per foot for the 4-in. and 6-in. laterals, respectively.

Two test units were operated for two years. Electric power readings showed that the thermostatically-controlled cables operated about 50% of the time over the January to April period. During the coldest months, the units were in operation nearly all the time. However, at no time did any freezing occur in the hydrant laterals. The electric power cost ranged from $2.50 to $3.00 per month per hydrant from January to April.



YES SIR, YOU HEARD RIGHT! Selected sizes of those famous "long-life" pumps are now available on fast delivery, and at prices much lower than formerly (depending on pump size).

Because of operational streamlining, Yeomans can offer these vertical wet pit pumps on this new basis without any sacrifice in quality. The pumps retain all the fine features which have made them a standard in the industry for years.

Sizes and models supplied range to 1200 GPM and are capable of handling 85% of your sewage pumping requirements.

See the Yellow Pages of your telephone directory for the Yeomans representative in your area, or write directly to Yeomans for Bulletin 8008 shown at right.

YEOMANS

1999-1 N. Ruby Street
Melrose Park, Illinois

CHECK THESE STANDARD "LONG-LIFE" FEATURES

- Impeller drive shaft, of an alloy piston steel, minimum diameter of 1$\frac{7}{16}$" on smallest sizes . . . Adjustable thrust bearing is elevated above suspension plate . . . Stuffing box at both float rod and shaft.

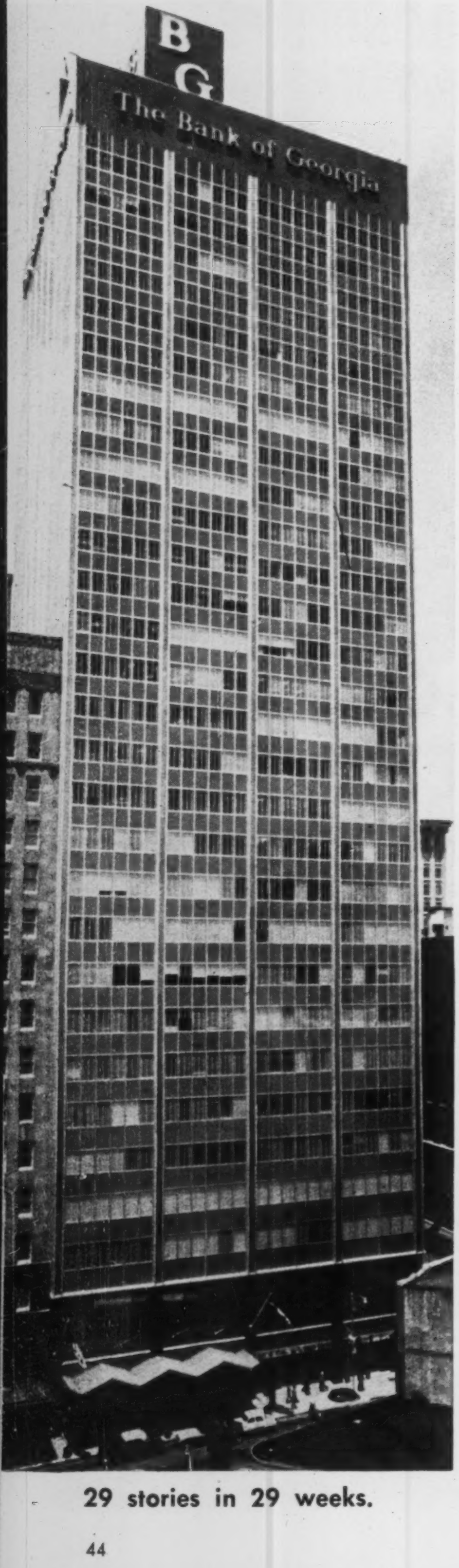
- Closely spaced intermediate sleeve bearings are furnished when required (at no more than 4′6″ intervals) . . . Registered index fits of all parts along pump . . . 3″ or 4″ Schedule 40 suspension pipe.

- Fully enclosed impeller passes a minimum 2½″ diameter sphere—larger spheres in larger pumps . . . Thick cross section castings, smooth passages in volute—no abrupt angles or threaded elbows . . . Discharge pipe size is 4″ minimum.

- Unique Series 8000 impeller action insures a constant flow of lubricant while pump is in operation. Lubricant completely flushes bearing surfaces, passes through the impeller, and is discharged. Vanes serve as scavengers for material that might lodge between impeller and pump casing.

P-6138

Atlanta's Tallest Went Up Fast



29 stories in 29 weeks.

The builder of the new Bank of Georgia Building—Atlanta's tallest at 31 stories—put up 29 stories of concrete frame in 29 weeks. He did it by keeping to a five-day, three-floor, cast-cure-strip cycle all the way up, despite the difficult restrictions of his relatively small, downtown building site.

Henry C. Beck Co. of Dallas, Tex., the general contractor, put as much as 50 cu yd of concrete an hour into plywood forms for the 100x112-ft floors and the columns supporting them.

Key to the speed of operation was strict scheduling of materials deliveries. Beck set exact times for arrival of trucks at the site. The building stands at Atlanta's busiest intersection—Five Points—and traffic could not be disrupted.

The 391-ft concrete frame of Atlanta's record-breaking skyscraper has a 42-ft steel tower on top of it. The 25-ft-square tower, clad in porcelain-enameled aluminum, bears the bank's name in 12-ft painted steel letters that are lighted at night. A 2,500,000-candle power beacon tops the tower, shining red in one direction, white in the other.

The lightweight frame Henry C. Beck built was designed by ultimate strength theory to meet American Concrete Institute Building Code Requirements for Reinforced Concrete. Columns and beams act as rigid frames to resist wind forces. Floors are of metal-pan concrete construction with shallow, wide beams spanning between columns; soffits of beams and joists are at the same level.

The floors—in 25x27-ft bays—required 3,000-psi concrete; columns required a 5,000-psi mix in the lower floors, a 3,750-psi concrete part way up and 3,000-psi in the top stories. Beck used mixes that yielded 28-day strength in 7 days; so the 5,000-psi concrete, with 4- to 5-in. slump, tested up to 8,500 psi in 28 days.

When concreting reached the 19th floor, a crew started installing the exterior curtain wall.

Curtain-wall sandwich panels, 4 ft wide and 5 ft, 6 in. high fit between 6-ft-high windows. The 1-in.-thick panels are porcelain-enameled aluminum on the outside, steel on the inside. Aluminum mullions extend the height of the building to receive the panels and glazing. Connections are welded to angles on the concrete spandrel beams at even floors; bolted at odd floors.

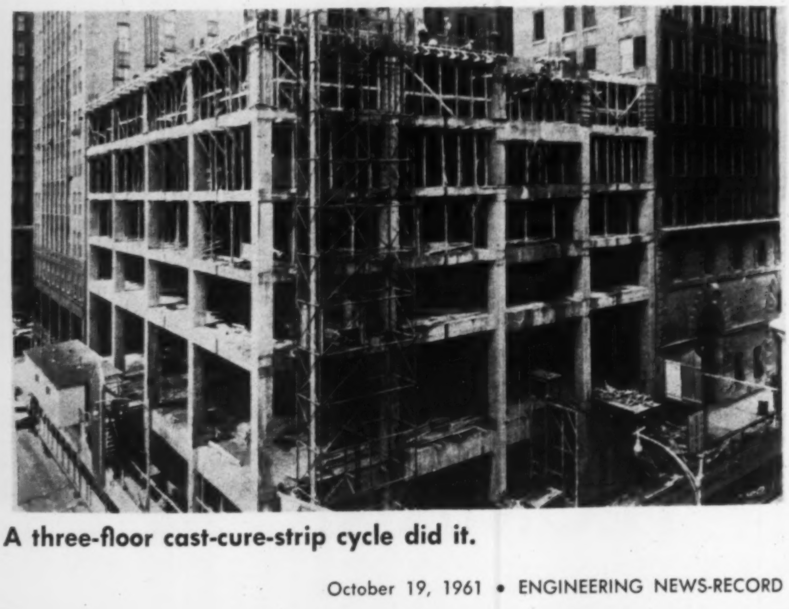
Columns are covered with gold-anodized aluminum. And in the center of each bay an aluminum fin extends the height of the building.

Mechanical rooms for heating and air conditioning are on the 30th and 31st floors. Boilers are on the 30th, with the cooling tower, to avoid carrying a stack through the building.

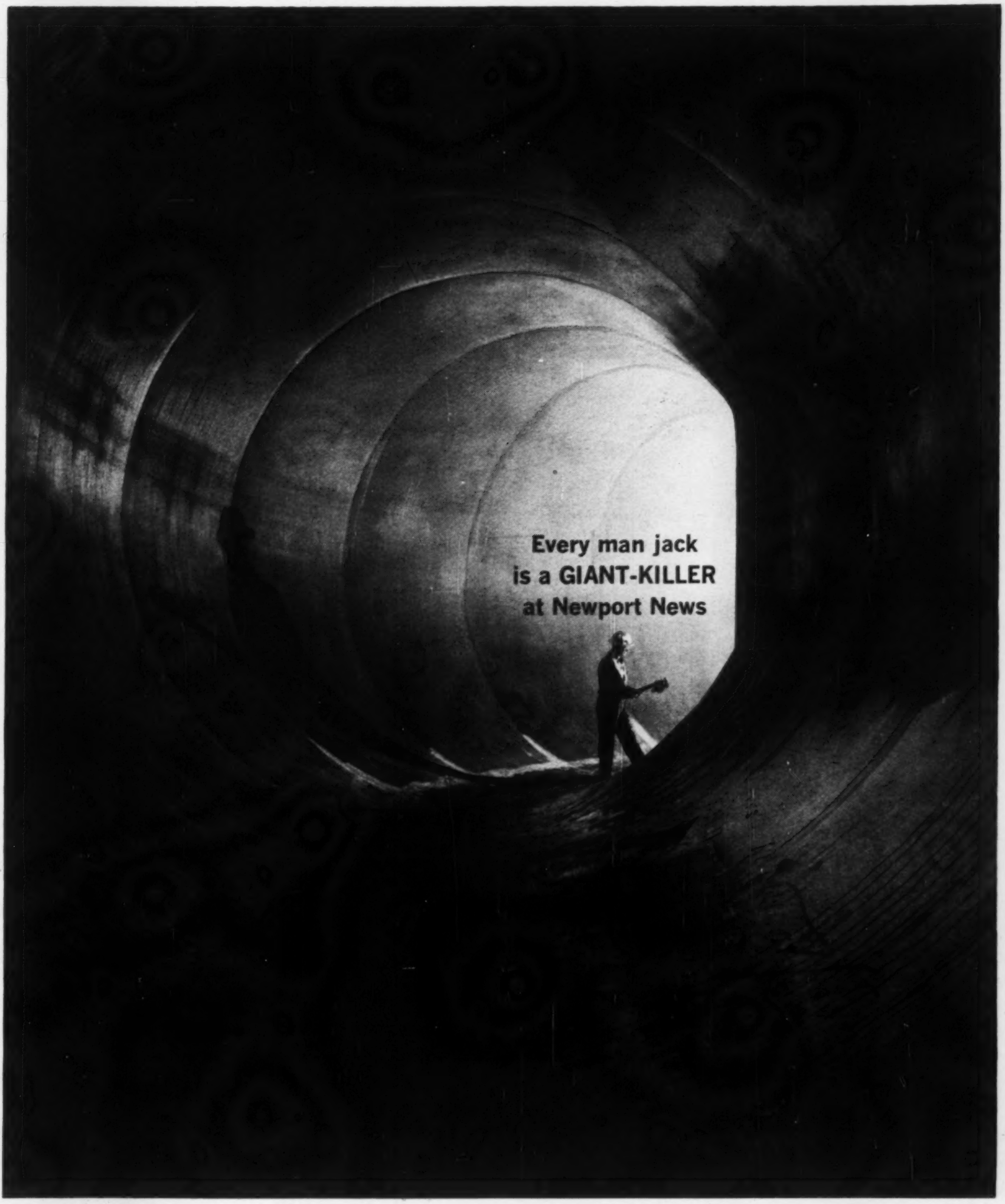
Air for heating and cooling circulates in the relatively small ducts of a high-velocity, single-duct system. Compressors are in the basement. Fans and coils on the 9th and 10th floors deliver air to lower and central floors; equipment on the 30th services top floors.

Besides moving stairs to the banking lobby, one elevator serves the bank—2nd to 5th floors. Six automatic elevators serve all floors.

Wyatt C. Hedrick of Ft. Worth, Tex., was architect-engineer, with Thomas E. Stanley of Dallas associate architect. Nichols Engineering and Materials Co., Dallas, installed the curtain walls.



A three-floor cast-cure-strip cycle did it.

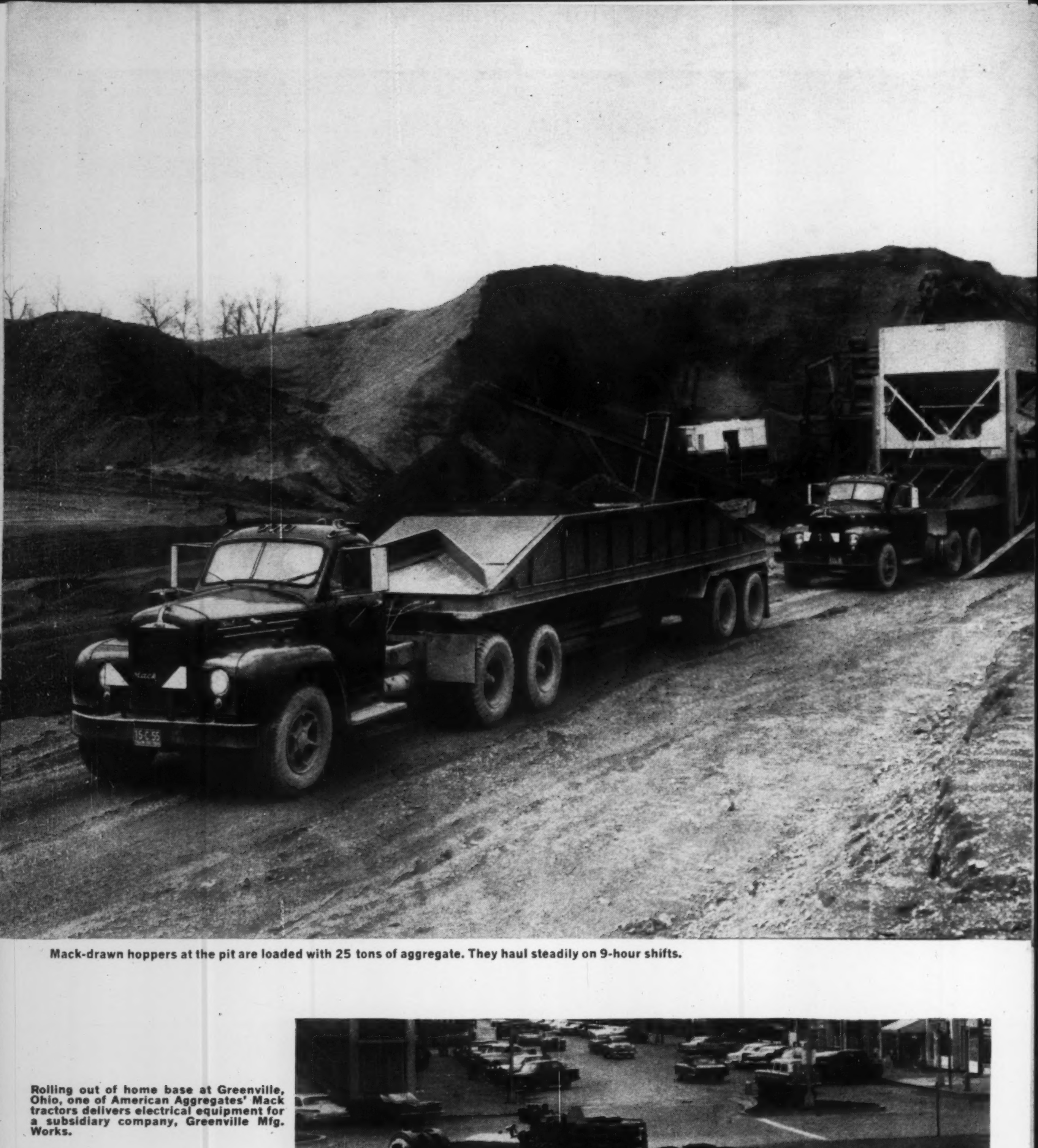


This huge hydraulic turbine casing dwarfs the workman—but to him and 15,000 others at Newport News, tremendous jobs such as this are routine.

Here giant engineering and production challenges are conquered in stride. Turbines, valves, gates and penstocks for the greatest hydroelectric projects—Niagara, Grand Coulee, Hoover and 96 others. Pressure vessels and similar heavy equipment for the petrochemical industry. Paper dryer rolls, wind tunnels, bridge caissons—almost any job that calls for heavy steel fabrication and machining of massive parts to close tolerances.

Whatever your project, call on Newport News. It has the men, methods and machines to accept the toughest challenge.

Newport News
SHIPBUILDING AND DRY DOCK COMPANY
NEWPORT NEWS, VIRGINIA



Mack-drawn hoppers at the pit are loaded with 25 tons of aggregate. They haul steadily on 9-hour shifts.

Rolling out of home base at Greenville, Ohio, one of American Aggregates' Mack tractors delivers electrical equipment for a subsidiary company, Greenville Mfg. Works.

At American's Ft. Jefferson ready-mix plant Mack mixer units take on 6-yard loads of concrete for local delivery.

Where performance counts—

Moving big tonnage for American Aggregates Corp.

Throughout the Ohio Valley, the Mack trucks of American Aggregates Corporation are a familiar sight. In addition to being the country's largest sand and gravel suppliers, the company manufactures diverse products ranging from ready-mix concrete to electrical equipment. These broad operations have one thing in common—a reliance on Mack trucks and tractors to handle the many and varied hauling assignments.

Says American Aggregates' president, Mr. Edward Hole, "We've used Macks for over 20 years, so we speak from experience when we say that these trucks are capable of handling efficiently any hauling job we've ever tackled. Their performance is tops wherever we use them, and there's never been the slightest question about their durability, ruggedness and economy—4 mpg on our gas units and 7 mpg on our diesel-powered models."

American Aggregates' Ft. Jefferson sand and gravel operation is a model of efficiency. Bottom dump trailers hauled by Mack B60 series tractors, run 25-ton loads of aggregate over well kept haul roads from pit to processing plant on a 9-hour-a-day schedule . . . average nearly a quarter of a million tons a year. After processing the aggregate, Mack dumpers make deliveries to customers and to American Aggregates' big ready-mix operation where 6-yard Mack mixer units handle concrete deliveries.

Modern, efficient, high-volume operations like these depend on modern efficient equipment to keep operating costs low. Macks contribute to high efficiency because of their outstanding performance characteristics. Mack Thermodyne® gasoline and diesel engines provide plenty of power for fast get-aways under full loads. Traditional Mack construction throughout reduces downtime and maintenance.

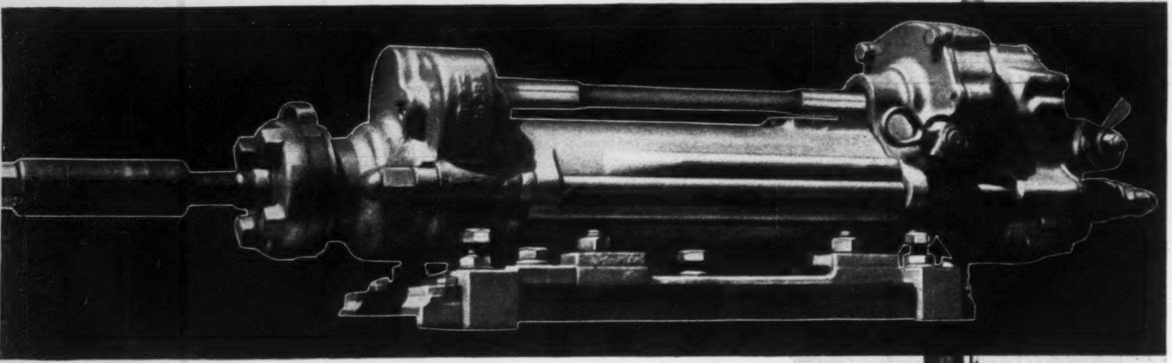
These are basic reasons why Macks are first choice where profitable operations rely on truck performance . . . why a Mack will pay for itself again and again by delivering top work capability per dollar invested. Your Mack representative is qualified by knowledge and experience to help you determine the Mack models that most economically meet your trucking needs. Mack Trucks, Inc., Plainfield, New Jersey. Mack Trucks of Canada, Ltd., Toronto, Ontario.

MACK
FIRST NAME FOR
TRUCKS

MACK
for over 8 straight years
NO. 1
by far in sales of
diesel trucks

8369

GARDNER DENVER'S PR123



Still the only drill with absolute control

Rotation without impact—efficient gear motor powers rotation in either direction. Finger-tip selection of any rotation speed in either forward or reverse. Neutral position stops rotation.

Impact without rotation—separate hammer control. Operator can vary percussion from light to heavy blows. Use to loosen couplings or stuck steel.

Impact and rotation—selective drilling. Use light percussion and rapid rotation for soft rock, or heavy impact and slow rotation for hard rock.

No rotation parts in cylinder—no rifle bar or ratchet ring, no pawls or other internal rotation parts. Cuts downtime and parts cost.

Faster hole penetration—PR123 rock drill uses all hammer energy directly for percussion. There's no rotational drag on the piston hammer.

Power coupling and uncoupling—for fast steel changes. Rotation without impact permits power coupling of threaded rod without thread damage. Reverse rotation speeds uncoupling.

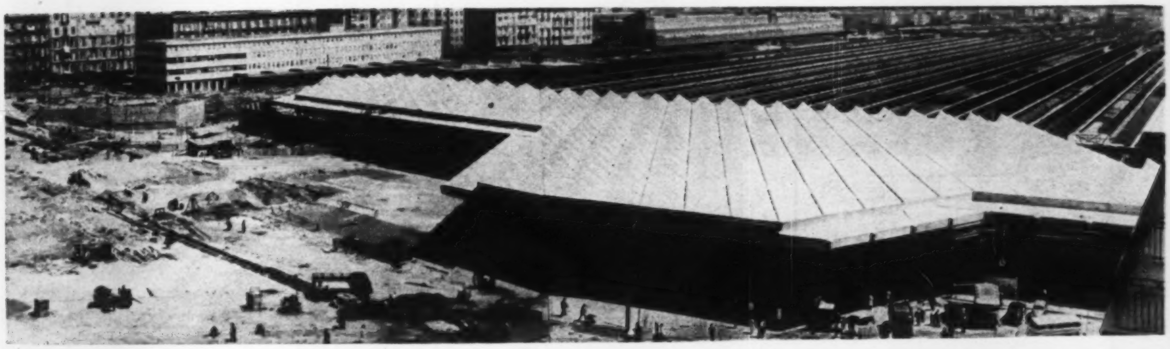
To learn how you can cut rock-drilling time, ask your Gardner-Denver Rock Drill Specialist more about the PR123 power rotation drill, or write for Bulletin PR-1.

GARDNER-DENVER Since 1859

EQUIPMENT TODAY FOR THE CHALLENGE OF TOMORROW

GARDNER-DENVER

Gardner-Denver Company, Quincy, Ill.—Offices in principal U. S., Canadian and Mexican cities
In Canada: Gardner-Denver Company (Canada), Ltd., 14 Curity Avenue, Toronto 16, Ontario
International: Gardner-Denver International Division, 233 Broadway, New York 7, N. Y.
Offices: Buenos Aires, Argentina; Artarmon, N.S.W. Australia; Brussels, Belgium; Rio de Janeiro, Brazil; Santiago, Chile; Barranquilla, Colombia; Lima, Peru; Ndola, N. Rhodesia; Salisbury, S. Rhodesia; Johannesburg, Transvaal



Naples' New Terminal: Cover with Style

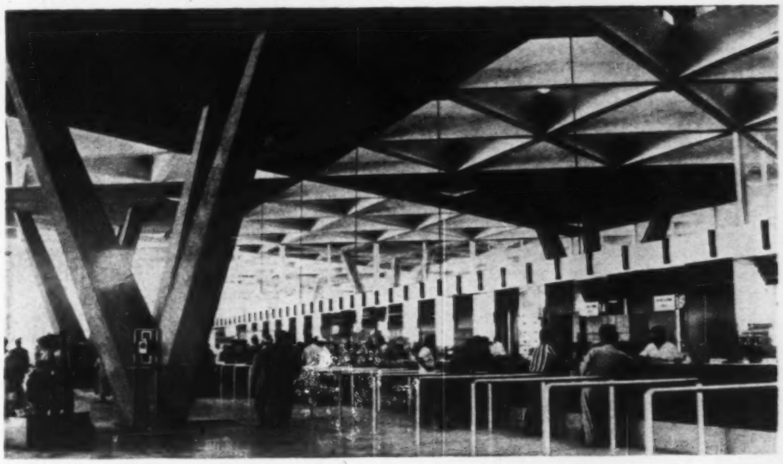
Among the gardens of Garibaldi Square, Naples has built a railroad terminal at a cost of $5 million to accommodate over 200 trains a day. The terminal is part of a bigger project, costing an additional $11 million, which will include a new central post office, a combined 15-story office building and 500-room hotel, a new city transport station and a new piazza designed to serve as an international show-piece.

In order not to block out the view of Naples' most famous tourist sight, Mt. Vesuvius in the background, the architects, Battaglini, Cameli, Lombardi and Vitali designed a low concrete roof supported on tripod-shaped concrete columns 64 ft c-c. Francesco Tirone, Inc., did the engineering.

The structure is about three city blocks long, 196 ft high and 820 ft wide. The architects adopted skewed, triangular roof framing. Beams span 16 ft between intersections to support a roof composed of precast concrete pyramids.

The roof of the station stretches the entire width of the piazza. It extends out into the piazza, where it will join the roof of a bus and trolley station. Train and bus passengers won't emerge from cover. Under two huge, glass pavilions are ticket offices, information section, waiting rooms and other services.

During construction, all train schedules are being maintained without interruption. The project will be completed this year after nine years of work.



Tripod columns carry skewed roof framing.

Bid Call Due on Syrian Dam Project

A call for bids is expected soon for the first stages on a $352.8-million multipurpose project on the Euphrates River in Syria. The scheme includes a 2.5-mile-long flood control and power dam plus an elaborate irrigation system.

Biggest single item in the project is a 196-ft-high dam to cost an estimated $126 million. The power station will have a capacity of 600,000 kw to be used mostly for pumping irrigation water. The power generation facilities will cost $126 million; the irrigation system, $140 million.

The dam was planned before Syria and Egypt united to form the United Arab Republic in 1958. In 1959, the Soviet organization, Techno-export, contracted to make studies for the dam under the 1957 Soviet-Syrian Economic and Technical Aid Agreement.

The Syrians' original plans called for a much smaller undertaking but after the formation of the UAR the project was broadened for prestige and political propaganda purposes as well as the economic gains.

The Soviet aid agreement, amended a year ago, does not provide for Russian participation beyond the studies which were completed this year.

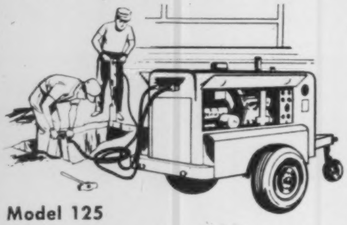
West Germany will finance construction of the $126-million dam as part of a $164-million credit extended to the UAR last July. According to Syria's Major Projects Organization, other stages of the development also will be financed from foreign credits, but from where and whom was not disclosed.

The agreement with Bonn relates only to financing of the dam and does not stipulate purchase of equipment from West Germany. But it is expected that the Germans will want some say in how the money is spent and a group of West German technicians is now in Syria examining the project studies.

only

DAVEY

Rotary Compressors
have *Perma-Vane** blades



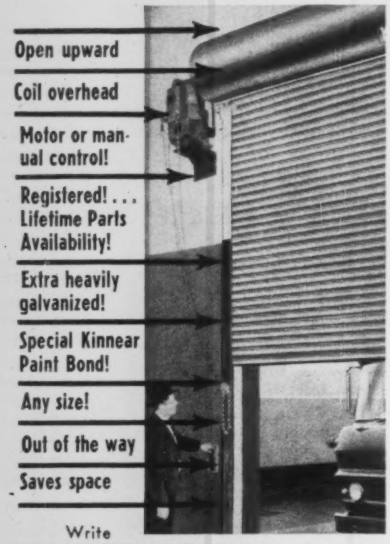
Model 125

Perma-Vane blades are made of special light metal alloy. They eliminate the greatest single source of rotary compressor trouble . . . are free from deterioration and breakage . . . offer maximum wear resistance, longer operating life. Write for Bulletins E-263 and 268. A-4245A

*Registered tradename. Perma-Vane blades are covered by U. S. and British patents.

DAVEY COMPRESSOR CO.
Kent, Ohio
DAVEY built to serve and endure
distributors everywhere

Kinnear
ROLLING DOORS



- Open upward
- Coil overhead
- Motor or manual control!
- Registered! . . . Lifetime Parts Availability!
- Extra heavily galvanized!
- Special Kinnear Paint Bond!
- Any size!
- Out of the way
- Saves space

Write
The KINNEAR Manufacturing Co.
KINNEAR ROLLING DOORS Saving Ways in Doorways
1820-40 Fields Avenue
Columbus 16, Ohio
1742 Yosemite Ave.
San Francisco 24, Calif.

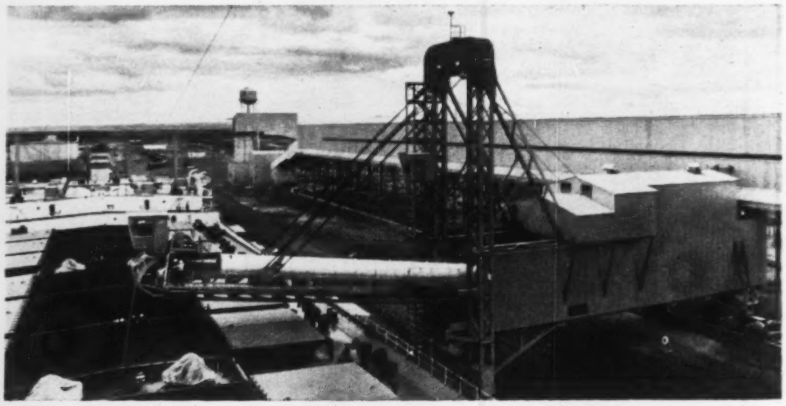
Landslides that demolished terraced homes are causing . . .

Japan to Institute New Code

To avert landslides like those that wrecked new suburbs and killed 270 persons last June, the Japanese are working on a site preparation code for new housing developments. Meantime the Ministry of Construction is withholding permission to start new developments.

No site code now exists. Engineers are studying the June slides to develop a basis for the proposed rules. They expect to complete the code this year.

The June slides occurred after heavy rains. About 8,000 slides in all hit terraced developments in newly built-up suburbs of Tokyo, Yokohama and other major cities.



Giant Shiploader Begins Ore Job

One of the largest shiploaders in the world has gone into operation at the unique, man-made harbor (ENR Dec. 15, 1960, p. 34) built for the Quebec Cartier Mining Co. at Port Cartier, Quebec.

The ore comes 190 miles by rail from QCM's new mine at Lac Jeannine; the harbor is on the north shore of the St. Lawrence River, some 500 miles northeast of Montreal.

The loader is the terminal unit of an intricate conveyor system that delivers ore to the dockside from nearby dumper installations and storage buildings. Its capacity is 100 tons per minute.

The unloader's main structure stands on four trucks and moves on rails along the dockside a distance of 870 ft. A wheel-mounted frame inside the main frame shuttles in and out over a distance of 50 ft at right angles to the dockside. The frame and an 85-ft-long pivoted boom extending over the edge of the dock support an endless conveyor that transfers ore to a ship's hold.

The Mechanical Division of Dominion Bridge Co., Ltd., built the loader.

Before you buy any storage tank...

take
a
look
at
PRESTRESSED
CONCRETE

CHEMICAL • PULP and PAPER • PETROLEUM • NUCLEAR • CEMENT • WATER SUPPLY No matter what your storage problem, from municipal water supply to phosphoric acid, a prestressed concrete tank offers many immediate and long term advantages. Adapted to your individual needs, prestressed concrete tanks have an enviable record of low maintenance and long service life. Elevated, surface or underground, lined or unlined, special or standard domes ...here is storage capacity to meet your needs. Write or call for your copy of our new bulletin "Prestressed Concrete Tanks."

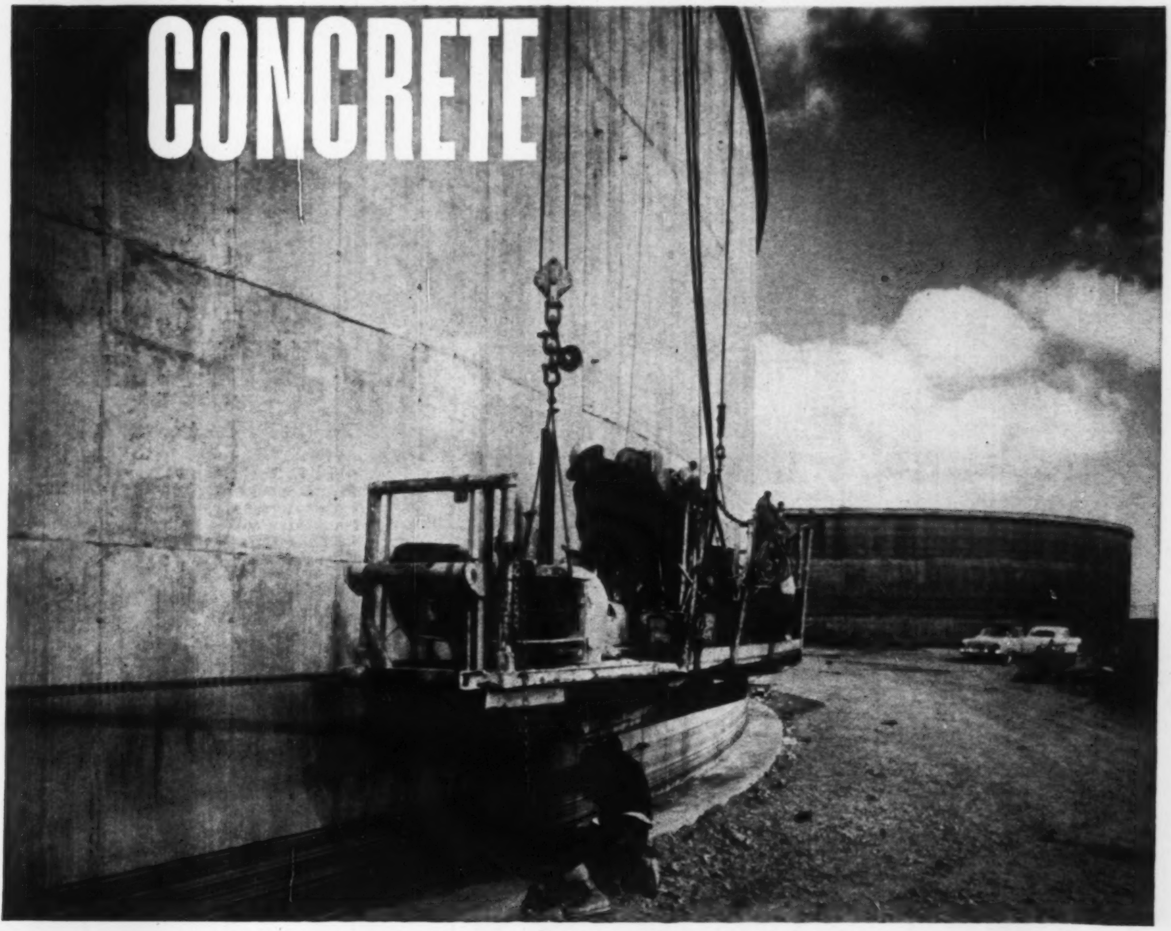
PRELOAD

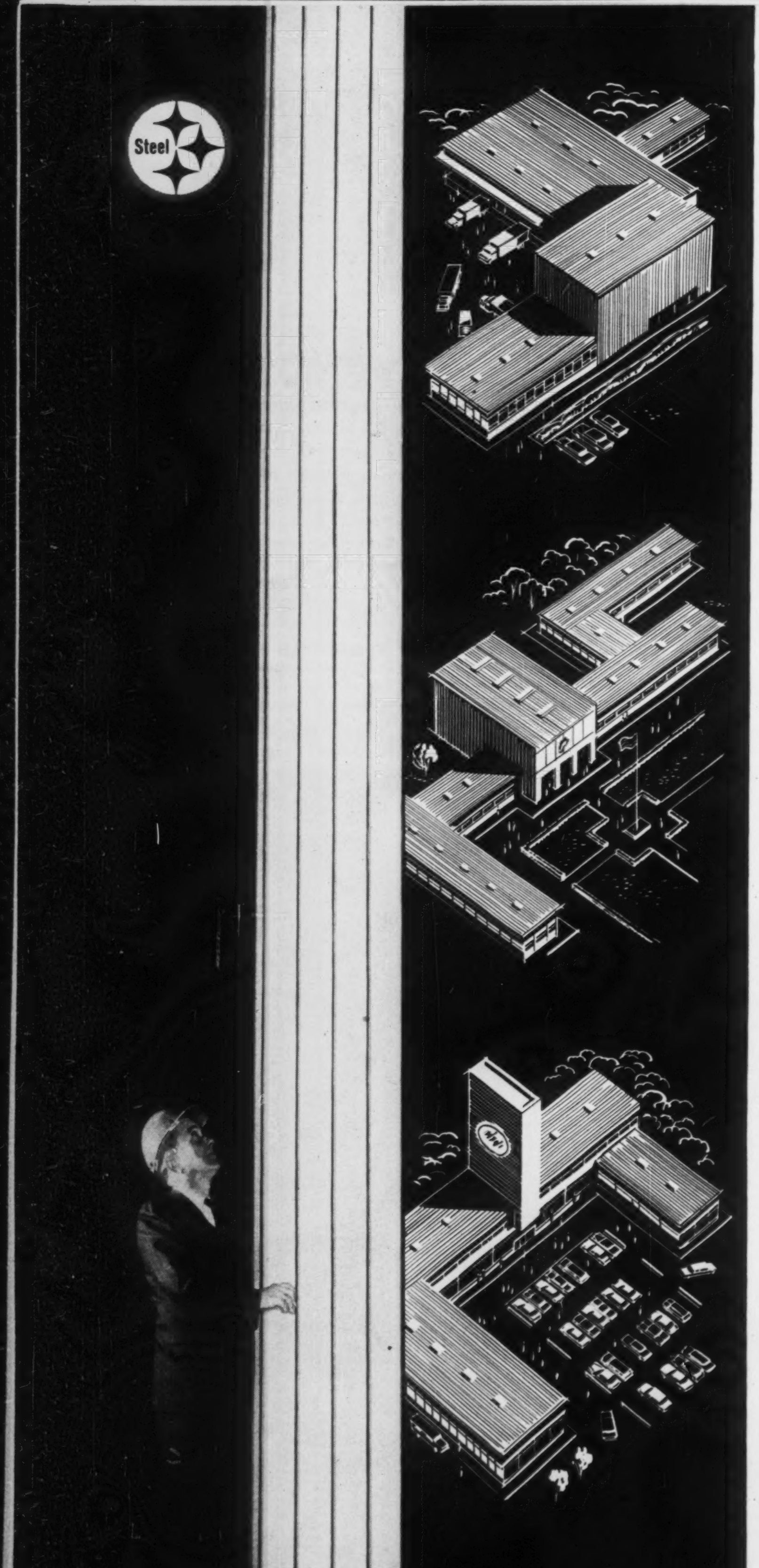
THE PRELOAD COMPANY, INC.
355 Lexington Ave., New York 17, N. Y. • Tel.: MUrray Hill 7-0488
1216 Hartford Bldg., Dallas 1, Texas • Tel.: Riverside 8-4047

PRELOAD CONCRETE STRUCTURES INC.
837 Old Country Rd.
Westbury, L. I., N. Y.

THE CANADA GUNITE COMPANY, LTD.
125 Hymus Blvd.
Pointe Claire, P.Q., Can.

HERRICK IRON WORKS
P.O. Box 3007
25450 Clawiter Rd.
Hayward 2, Calif.





NOW! GET STEEL ROOF DECK IN LENGTHS UP TO 50 FEET

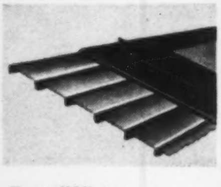
Here's good news for roof deck users! Wheeling's Super-Rib Steel Roof Deck now comes in any length . . . as long as a common carrier can handle it.

CUTS INSTALLATION COSTS! These extra-long lengths mean fewer end laps . . . fewer sheets to handle. And — because Wheeling's new design is so strong — you can now use Wheeling Super-Rib Roof Deck on continuous spans up to 12′-0″.

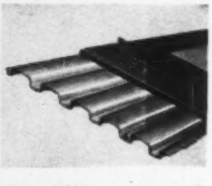
SPECIAL PROTECTIVE COATING! Wheeling's new, improved steel roof decks have outstanding protection against weather, both during and after installation. First, they're Bonderized*; then they're *extra-protected* with a specially developed, roller-coated, baked-on gray vinyl primer!

Get the complete facts on both types of Wheeling Super-Rib Roof Deck . . . and the other fine Wheeling Products shown on the next page . . . from your Wheeling man this week. Or write Wheeling Corrugating Company, Wheeling, West Virginia.

CHOOSE FROM TWO TYPES!



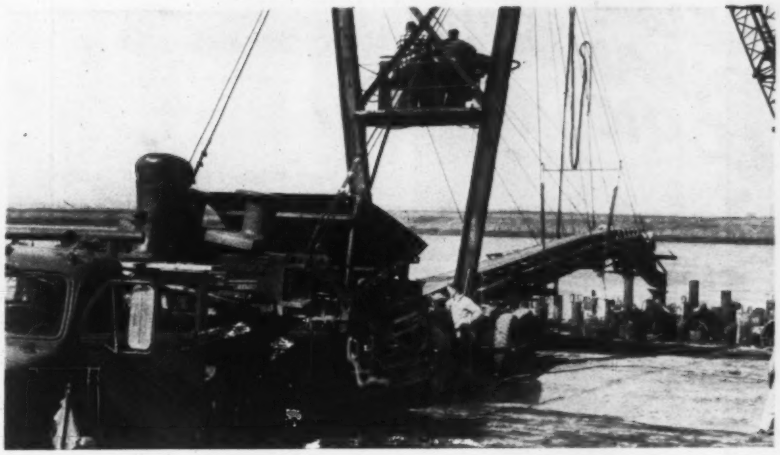
Type "A" has narrow ¾″ rib openings for greater adhesive contact . . . use with all types of insulation.



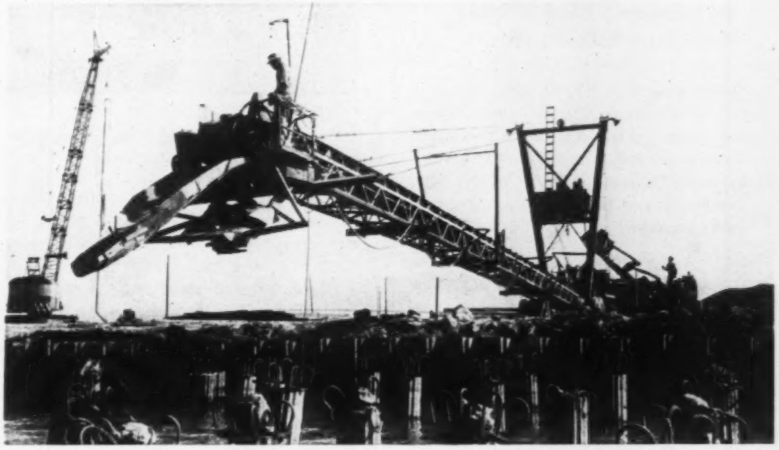
Type "B" has wide 2⅜″ rib openings for higher carrying capacity . . . use over longer continuous spans.

WHEELING CORRUGATING COMPANY
IT'S WHEELING STEEL! Warehouses: *Boston, Buffalo, Chicago, Columbus, Detroit, Kansas City, Louisville, Martins Ferry, Minneapolis, New York, Philadelphia, Richmond, St. Louis.* Sales Offices: *Atlanta, Houston, New Orleans.*

**Registered Trademark of Parker Rust Proof Company*



Trailer-Mounted Conveyor . . .



. . . Covers the Waterfront

The long arm of a conveyor is paying off for the Newark Construction Co., of Newark, Del., contractor for an extension to the Wilmington Marine Terminal pier.

The 108-ft-long conveyor is mounted on a 100-ton-capacity low-bed trailer. Presently, Newark uses it to place riprap and concrete. The belt can handle 60 cu yd of concrete per hour and 100 tons of riprap per hour.

The 80 x 1,000-ft pier rests on 1,277 cast-in-place piles. They are capped with a 27-in.-thick monolithic concrete slab, which supports 3 ft of earthfill and another 9 in. of concrete.

The contractor used the conveyor to concrete the piles and the cap and then to place 30,000 tons of riprap to protect against wave action.

Concrete is loaded directly from truck mixers into a hopper mounted on the trailer ahead of the inverted A-frame that supports the boom. Riprap is loaded with a tractor shovel.

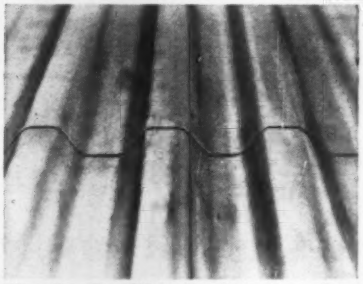
A man rides the outboard end of the boom and controls a 17-ft-long discharge chute, which swings in a 160 deg arc. The boom itself cannot be shifted on the trailer, but a slight jackknife of the lowbed alters the position of the boom.

Eighteen to 20 tons of miscellaneous iron ballasts the trailer. The contractor estimates the rig's cost at $10,000 to $12,000.

Newark Construction Co. is run by Warren C. Eastburn, vice president of its affiliate, Henry C. Eastburn & Son, which designed and built the seafaring army tanks used to construct a breakwater (ENR June 18, 1959, p. 129).

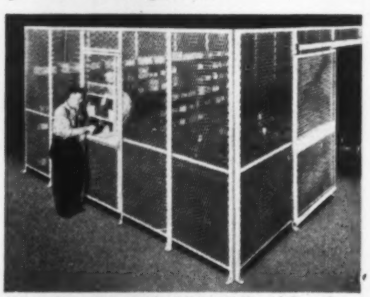
OTHER WHEELING PRODUCTS

Wheeling Continuous Weld Steel Pipe gives strong, dependable, low-cost service...usually outlasts the building itself.



Wheeling Tensilform®, with conventional or light aggregate concrete, gives structures excellent lateral stability.

Wheeling SofTite® Cop-R-Loy® Galvanized Steel Sheets, for heating and air-conditioning ducts, will not flake or peel under rough use.

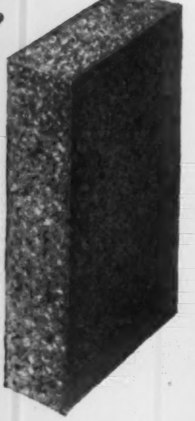


Wheeling Expanded Metal Partition Systems prevent pilferage... yet allow free passage of light, heat, air and moisture.

SERVICISED

SELF-EXPANDING CORK

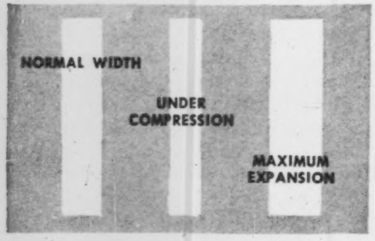
Joint Filler



- Keeps Joints Filled Under Maximum Contraction
- Widely Specified and Used in Bridge Structures and Canal Linings, Spillways, Sewage & Water Treatment Plants, Flood Walls and Tunnels

Servicised SELF-EXPANDING CORK is specially designed for projects where it is essential to keep the joints filled when contraction may open them up to more than original size. It's the joint material that actually "grows" and expands with the joint!

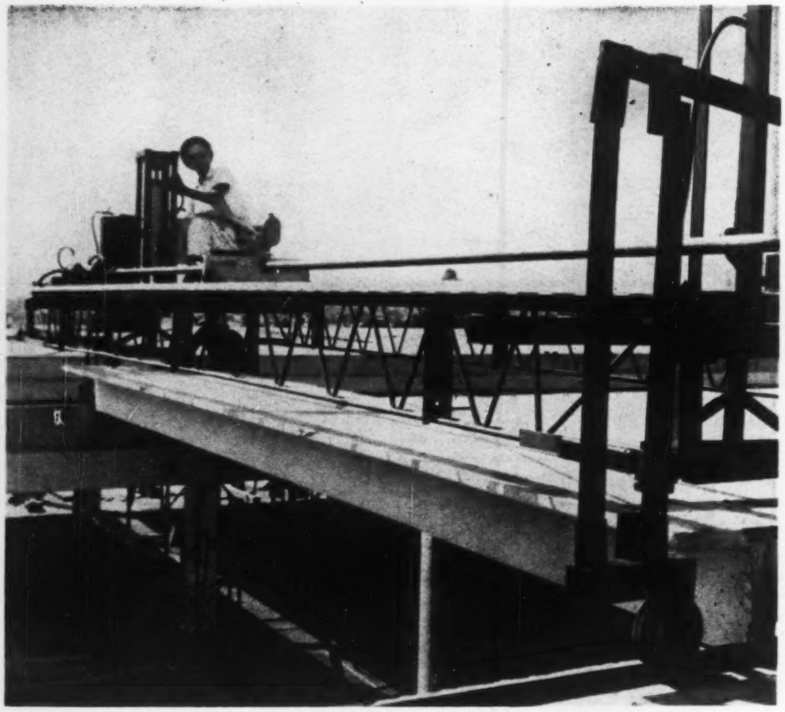
SELF-EXPANDING CORK is formed from clean, granulated cork particles securely bonded together by an insoluble synthetic resin binder. It is specially treated so that it will expand as much as 50% beyond original thickness. Fully compressible, non-extruding and resilient, Servicised SELF-EXPANDING CORK is available in 1/2", 3/4", and 1" thicknesses; widths to 36" and lengths to 10 feet.



The above illustration shows how this material can expand to as much as 50% of its original thickness.

Write today for your copy of the Servicised Catalog. It contains complete information on SELF-EXPANDING CORK as well as many other types of premolded joint fillers.

SERVICISED PRODUCTS
CORPORATION
6051 West 65th Street • Chicago 38, Illinois



Rail Cart Spots Pre-Cast Beams

How can you position pre-cast concrete beams and slabs for a third floor roof-deck when your crane barely clears the top of the roof columns?

Place parallel steel trusses on top of the columns so that they span a line of bays. Lay an inverted-V track on the trusses. And devise a carrier cart that will roll along the tracks in a fashion similar to overhead cranes.

The crane then lifts beams (and slabs) cast on the ground to the rail carrier, the carrier moves them along the tracks and positions between columns (or beams).

That's how the construction superintendent of the Superior Sand and Gravel Co. placed 12 prestressed beams and 795 slabs on the roof of Diamond's department store in Phoenix, Arizona.

The beams weigh 6 tons, the slabs 4 tons. Despite the load, the only difficulty encountered with the improvised carrier was a tendency to jump the track, if not kept carefully in line.

After they positioned the beams, workmen removed the trusses and adjusted the rails to a smaller width so they could place the slabs. The picture above shows the rail carrier lowering a 24-ft-wide slab into position.

The rail carrier, with its 5 hp engine and front wheel drive, cost about $500 to build.

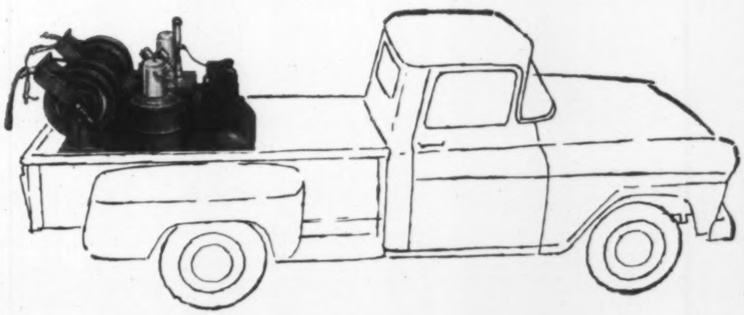
Robot Informs Sidewalk Supers

Builders of the $100-million, 60-story Pan Am Building under construction in New York City have installed a new aid to sidewalk superintendents. It's a 6-ft-high robot, Directomat, that answers questions about the building.

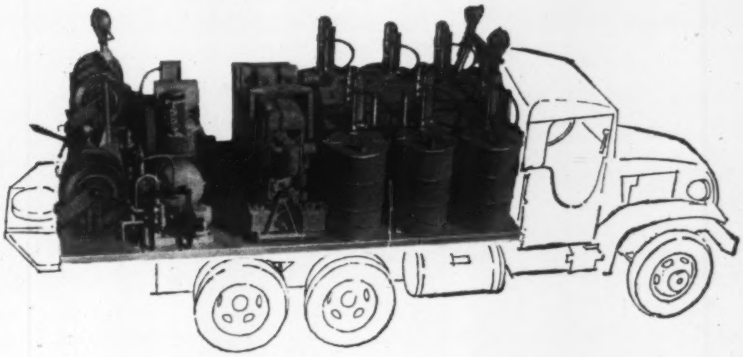
Located in adjoining Grand Central Terminal the machine responds with a printed answer when an inquirer pushes a numbered button corresponding to one of a series of posted questions.

The machine supplements a 12-ft-high model of the building on display and closed-circuit television of construction operations, provided by Diesel Construction Co., general contractor.

FROM THE SIMPLEST



TO THE MOST COMPLETE



Lincoln Lubrovans® and Lubmobiles® are Custom-Assembled to YOUR Job Requirements

These lube and service stations on wheels are tailored to the needs of your construction job. They're easily assembled into any combination from standard Lincoln components: pumps, compressor, reels, hose, fittings, etc. They bring the basic maintenance services—trac-roll and chassis lube, motor oil, gear lube, air and water, gasoline and diesel fuel—right to the jobsite. They can be as big or little, as simple or complex as you desire.

If you wish, you can even assemble your own rig. The Lincoln representative will be glad to help you select the components you need.

Meantime, if you'd like to see some typical rig assemblies, send coupon for Lincoln's latest catalog and manual.

LINCOLN ENGINEERING COMPANY
4010 Goodfellow Blvd., St. Louis 20, Mo., Dept. ENR-10

Please send me Lincoln equipment catalog and manual illustrating typical Lubrovan and Lubmobile installations.

Name..

Company..

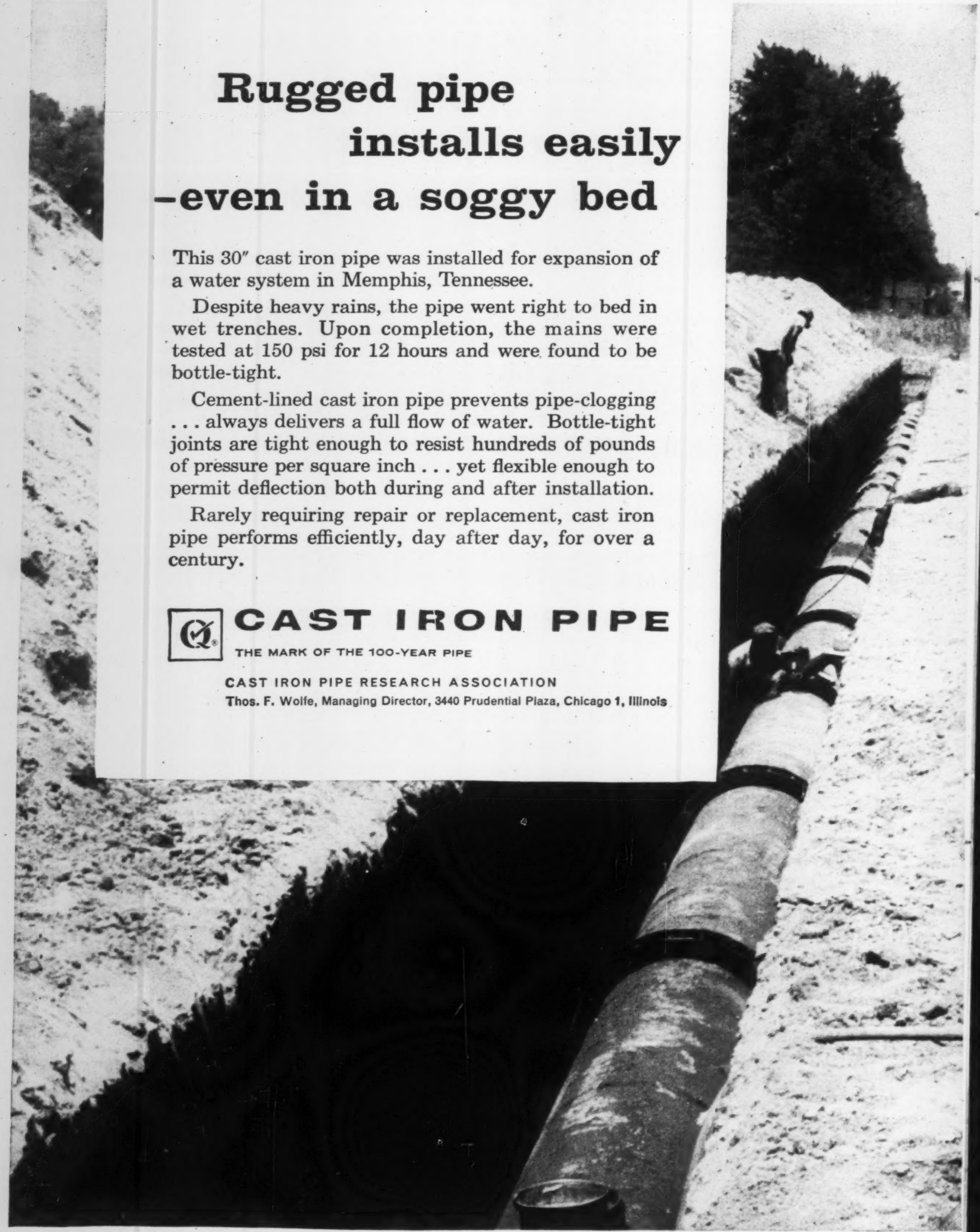
Address..

City.......................... State..........................

LINCOLN ST LOUIS

LINCOLN
ENGINEERING COMPANY
ST. LOUIS 20, MO. • DIVISION OF THE McNEIL MACHINE & ENGINEERING CO.

C6103



Rugged pipe installs easily –even in a soggy bed

This 30″ cast iron pipe was installed for expansion of a water system in Memphis, Tennessee.

Despite heavy rains, the pipe went right to bed in wet trenches. Upon completion, the mains were tested at 150 psi for 12 hours and were found to be bottle-tight.

Cement-lined cast iron pipe prevents pipe-clogging . . . always delivers a full flow of water. Bottle-tight joints are tight enough to resist hundreds of pounds of pressure per square inch . . . yet flexible enough to permit deflection both during and after installation.

Rarely requiring repair or replacement, cast iron pipe performs efficiently, day after day, for over a century.

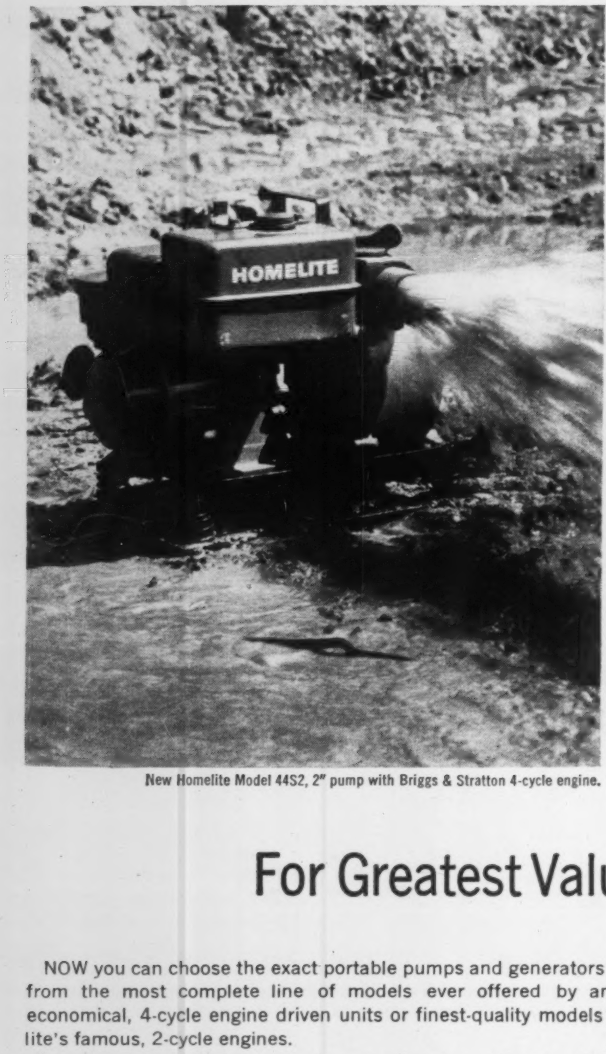
CAST IRON PIPE

THE MARK OF THE 100-YEAR PIPE

CAST IRON PIPE RESEARCH ASSOCIATION
Thos. F. Wolfe, Managing Director, 3440 Prudential Plaza, Chicago 1, Illinois

NEW!

Homelite Pumps and Generators with **4-Cycle** Engines



New Homelite Model 44S2, 2″ pump with Briggs & Stratton 4-cycle engine.

New Homelite Model 46A115, 1500 watt generator with Clinton 4-cycle engine.

For Greatest Value at Lowest Cost

NOW you can choose the exact portable pumps and generators your jobs require from the most complete line of models ever offered by any manufacturer: economical, 4-cycle engine driven units or finest-quality models driven by Homelite's famous, 2-cycle engines.

Homelite's new carryable pump and generator units driven by 4-cycle Briggs & Stratton, Clinton and Wisconsin engines give you Homelite-quality in construction, performance and service at new low prices. Pump sizes: 1½″, 2″ and 3″ centrifugals and 3″ diaphragm. Generator sizes: 1500, 3000 and 4500 watts. Your choice of gasoline or LP gas operated engines. Compact and lightweight, these units can be carried anywhere they are needed.

Write or call for complete information and a demonstration on your job. Do it today!

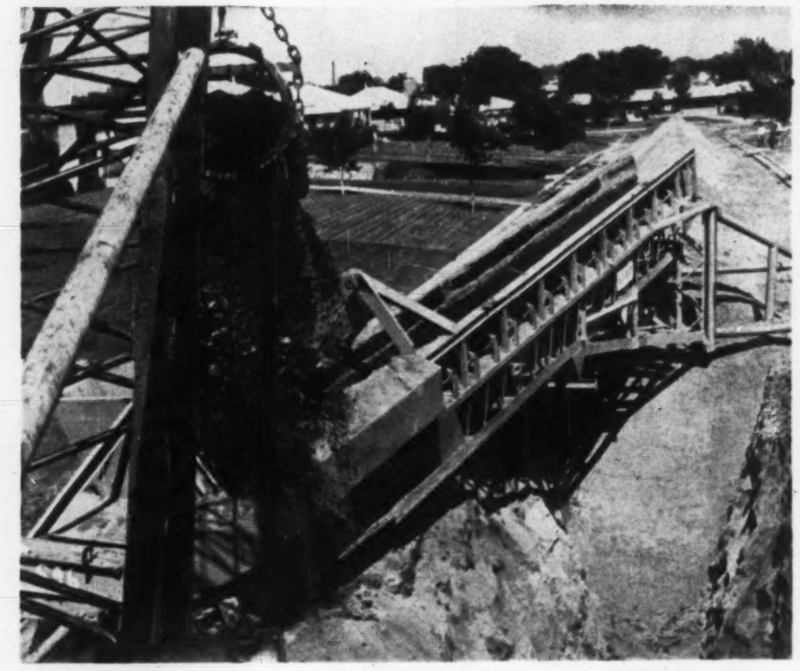
Homelite factory branches are located throughout the country. Your nearest one is as near as your phone. Call them or write for convincing demonstration or rapid service in any way.

HOMELITE

CARRYABLE PUMPS • GENERATORS
BLOWERS • CHAIN SAWS

HOMELITE • A DIVISION OF TEXTRON INC., 1110 RIVERDALE AVE., PORT CHESTER, N. Y.
In Canada — Terry Machinery Co., Ltd.

New Products



Machine Backfills Automatically

A trench backfill conveyor may speed up pipelaying as much as 300%, according to its manufacturer. Called the Model 161, the machine allows simultaneous excavating, pipe-laying and backfilling.

Spoils from a dragline, shovel or trencher are cast directly into a hopper over the conveyor. The spoil is then conveyed 50 ft behind the excavator and chuted back into the trench. The pipe-laying crew works in the 50-ft interval. Dozer backfilling and spoil piles on streets and lawns are eliminated. Shorter booms and larger buckets can be used on excavators.

A rigid tow bar shackles the conveyor to an excavator. At work, a 34-ft-wide axle straddles the trench, and hydraulic steering guides the machine around curves. Kolman Mfg. Co., Sioux Falls, So. Dak.

Steel Pre-fabs Offer Variety

United States Steel Homes Division has expanded its line of factory-manufactured, steel-framed houses to include 1½ and 2-story models and splitlevels.

The 1962 product line will be available to builder-dealers in 12 basic models, with 83 floor plans and 500 variations. Five styles are offered—colonial, contemporary, Old English, French provincial and New Orleans.

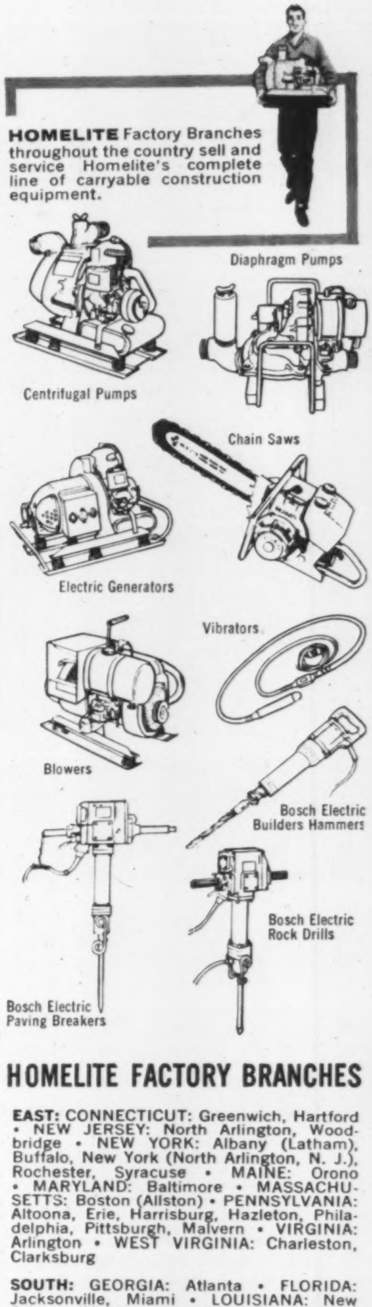
Framed with 24- and 28-ft trusses, all homes will have nonloadbearing interior walls and a 4-ft modular panel design for exterior walls. The interior walls will be attached to steel studs with a new adhesive fastening system, with nails only at top and bottom.

One- or two-car garages are part of most layouts. Purchasers can choose among basement, crawl space or concrete slab on ground and among brick, lap siding, cedar shingles or board and batten facades. Central air conditioning will be offered as an option.

All models have electric kitchens and double-hung windows with single operating sashes. Homes Division, United States Steel Corp., 208 So. LaSalle St., Chicago 90, Ill.

Combination Body Fits Most Small Trucks

This 2-in-1 combination body is available for almost any truck chassis of from ¾ to 2 ton capacity. The centrally located dump body, which has a maximum capacity of about 3½ cu yd, raises independently of the utility compartments on either side. The utility compartments are waterproof and contain adjustable shelves and bins for carrying tools and small parts. Morysville Body Works, Inc., Boyertown, Pa.


HOMELITE Factory Branches throughout the country sell and service Homelite's complete line of carryable construction equipment.

Diaphragm Pumps
Centrifugal Pumps
Chain Saws
Electric Generators
Vibrators
Blowers
Bosch Electric Builders Hammers
Bosch Electric Rock Drills
Bosch Electric Paving Breakers

HOMELITE FACTORY BRANCHES

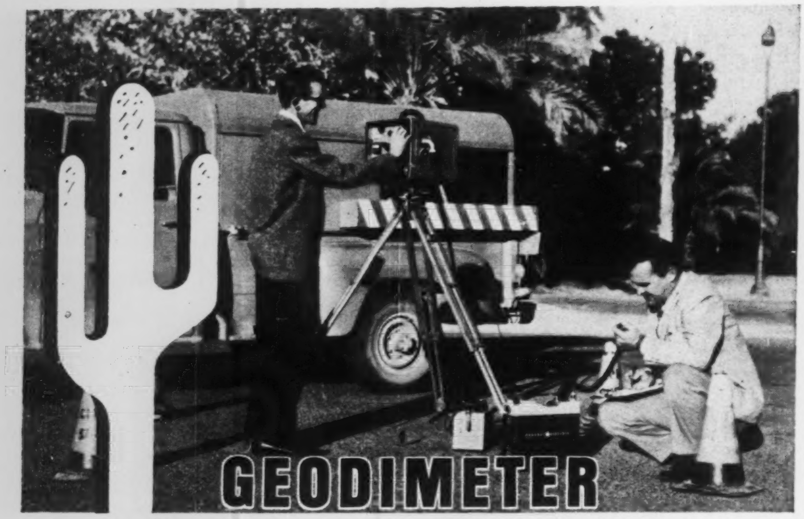
EAST: CONNECTICUT: Greenwich, Hartford • NEW JERSEY: North Arlington, Woodbridge • NEW YORK: Albany (Latham), Buffalo, New York (North Arlington, N. J.), Rochester, Syracuse • MAINE: Orono • MARYLAND: Baltimore • MASSACHUSETTS: Boston (Allston) • PENNSYLVANIA: Altoona, Erie, Harrisburg, Hazleton, Philadelphia, Pittsburgh, Malvern • VIRGINIA: Arlington • WEST VIRGINIA: Charleston, Clarksburg

SOUTH: GEORGIA: Atlanta • FLORIDA: Jacksonville, Miami • LOUISIANA: New Orleans (Metairie), Shreveport (Bossier City) • NORTH CAROLINA: Charlotte, Raleigh • OKLAHOMA: Oklahoma City • TENNESSEE: Knoxville, Memphis • TEXAS: Dallas

MID-WEST: ILLINOIS: Chicago (Stone Park) • INDIANA: Indianapolis • MICHIGAN: Detroit, Grand Rapids • MINNESOTA: St. Paul • MISSOURI: Kansas City, St. Louis • NEBRASKA: Omaha • OHIO: Cincinnati, Cleveland, Toledo • WISCONSIN: Milwaukee

WEST: CALIFORNIA: Fresno, Los Angeles (Alhambra), Sacramento, San Francisco • COLORADO: Denver • OREGON: Portland • UTAH: Salt Lake City • WASHINGTON: Seattle, Spokane

HOMELITE
A DIVISION OF TEXTRON INC.
1110 Riverdale Ave., Port Chester, New York
In Canada:
TERRY MACHINERY CO. LTD.



SURVEYS CITY OF PHOENIX WITH SPEED OF LIGHT!

Phoenix, Arizona among many other progressive cities has an ambitious program of re-mapping their community. Other municipalities have used the Geodimeter for re-mapping and re-defining boundaries, highway and road construction, urban development and general civil engineering work.

The Geodimeter system employs a unique principle that operates with the speed of light. Astounding results! Accuracies of .04 ft. on any range from 50 ft. up to 5 miles with the Model 4 Geodimeter. Only one trained operator is required to operate and conduct the entire survey. New reflex system specially designed for city surveying.

GEODIMETER... ECONOMICAL! ACCURATE! FAST! LIGHTWEIGHT!

These are among the modern cities where the Geodimeter has been used: Boston, Mass.; Buffalo, N.Y.; Charlotte, N.C.; Chicago, Ill.; Indianapolis, Ind.; Los Angeles, Calif.; Milwaukee, Wisc.; New York, N.Y.; Phoenix, Ariz.; San Francisco, Calif.; Seattle, Wash.; Washington, D.C.

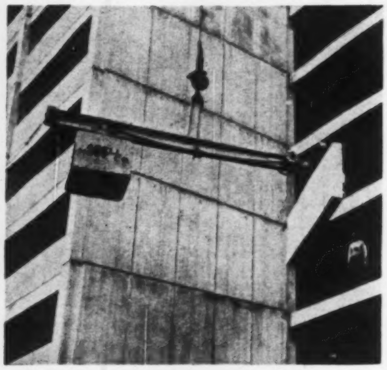
Illustrated: Geodimeter and optional extra equipment. (1) Model 4 Geodimeter, (2) prismatic reflectors, (3) lightweight, portable Generator, (4) miniature Barometer, (5) Duo-Com portable radios.

AGA CORPORATION OF AMERICA

2013 PARK AVENUE • P.O. Box 447 • SOUTH PLAINFIELD, N. J.

REPRESENTATIVES

Albinson, Inc., 520 Fourth Ave., S., Minneapolis, Minn.
E. Phil Harris Co., 125 S. 68th St., Birmingham, Ala.
Carl Heinrich Co., 711 Concord Ave., Cambridge, Mass.
National Blueprint Co., 517 W. Adams St., Chicago, Ill.
Seiler Instrument & Mfg. Co., Inc., 1629 Washington Ave., St. Louis, Mo.
Surveyors Service Co., 2021 S. Grand Ave., Los Angeles, Calif.
Thorpe-Smith, Inc., 308 S. Washington St., Falls Church, Va.



Counterweighted Beam Lifts, Balances Panels

Hung from a standard, crane loadhook, an adjust-a-load beam speeds the raising of precast concrete wall panels for storage on various floor levels of multistory buildings. It places them up to 7 ft. inside a building.

When a panel is attached at ground level to one end of the 18-ft-long beam, the counterweight on the other end is moved to a position that will just balance the beam and panel.

After the balanced load is lifted to the desired level and the panel set on the floor inside the building, the counterweight is centered to balance the unloaded beam. Abell-Howe Co., Forest Park, Ill.

Variable-Area Flow Meter Produced with Metal Tube

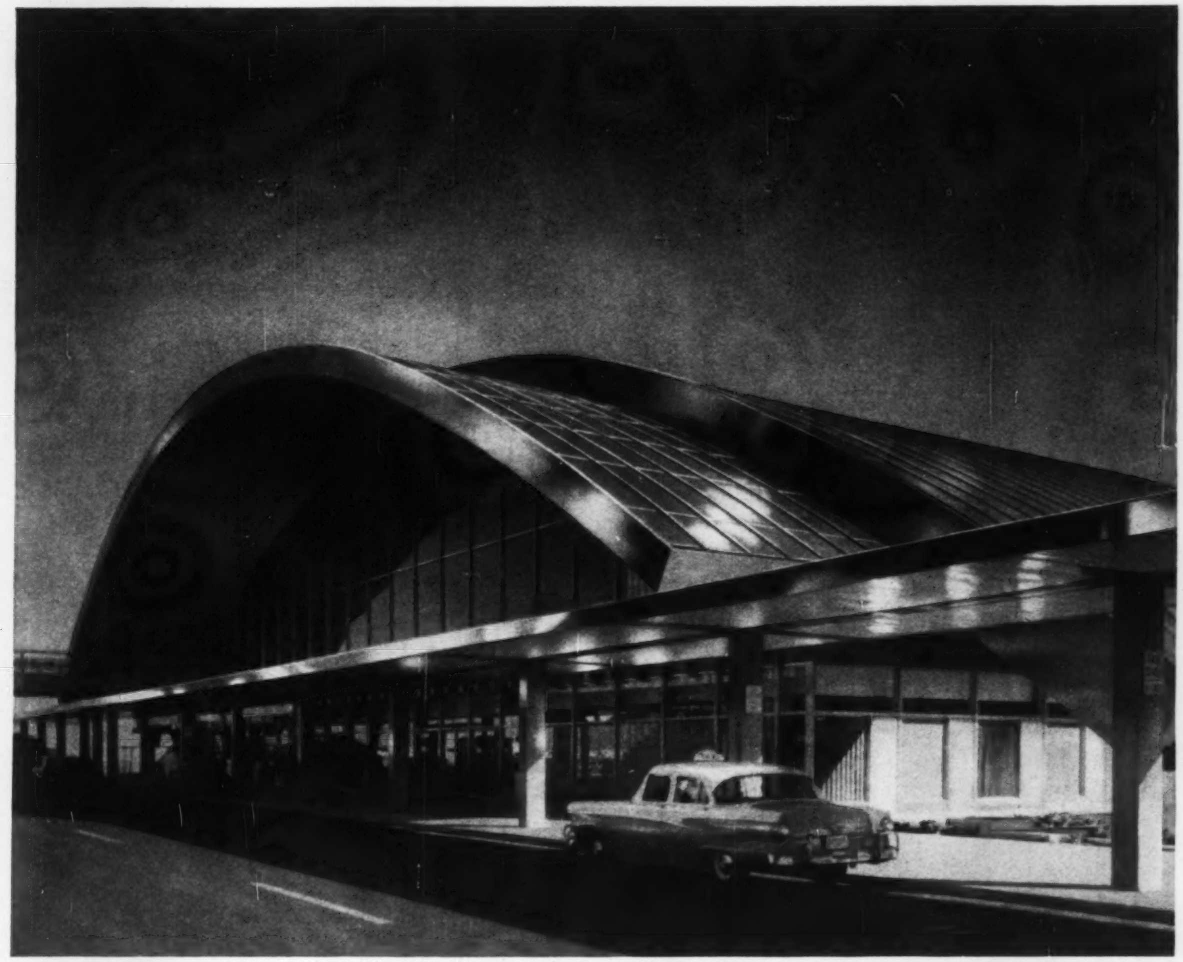
A line of metal-tube variable-area flow meters is designed for use where glass-tube-type meters won't do the job. The metal tube meters handle higher temperature and pressures and hazardous materials. They are supplied in a variety of materials to handle a wide range of industrial chemicals.

Meters have ASA 150-lb and 300-lb flanges. They are made in tube diameters from ½ to 3 in. Water capacities range from one to 400 gpm and air capacities from 4.2 to 1,680 cfm.

Each tube will accept any one of a family of interchangeable floats.

Tubes are supplied with either a magnetic indicating extension or with a transmitter to operate recorders, controllers or integrators. The follower ring travels in a precision-bore glass tube.

At each end, O-ring gaskets seal out dust and prevent fogging and corrosion. The meter rotates through 360 deg so that outlet piping may be brought in from any direction. Wallace & Tiernan, Inc., 25 Main St., Belleville 9, N. J.



International Arrival Building of New York International Airport. Arch is sheathed with 24-gauge, No. 2D special finish, Type 302 Nickel Stainless Steel. Architects: Skidmore, Owings and Merrill; General Contractor: Cauldwell Wingate Company; Roofing Contractor: Overly Manufacturing Company; Owner: Port of New York Authority.

New Front Door To America

Nickel Stainless Steel arch at New York International Airport makes a first impression last.

In they come to Idlewild...tourists, businessmen, royalty and refugees.

One of the first sights to catch their eye is this gleaming parabola of Nickel Stainless Steel.

To the visitor, this majestic structure is an outstanding foretaste of U. S. architecture. To the businessman it suggests the exciting things being done today with Nickel Stainless Steel in modern construction.

What's more, with every re-entry through the International Arrival Building, their favorable first impressions will be reinforced...for years to come.

Perhaps this is the most important fact to remember about architectural forms of Nickel Stainless Steel. Their beauty, their utility are lasting...almost everlasting.

Take the 26,000 square feet of Nickel Stainless Steel sheet that roofs this arch. Ten, twenty, fifty...who knows how many...years from now it will still look beautiful, still defy all that the elements and industrial atmospheres can do to corrode it.

And hardly a moment will pass during all those years that the properties of this Nickel Stainless Steel roofing will not contribute to the beauty and protection of the building. It has the strength to resist wet snow loads and high wind stresses. It has a coefficient of expansion that keeps it well adjusted to contiguous materials, brick, stone, cement. It stands up against corrosion by leaching mortars. It's virtually self-cleaning in rain. Never needs painting, lacquer, varnish, wax, cleaning nor maintaining, and never shows white corrosion products.

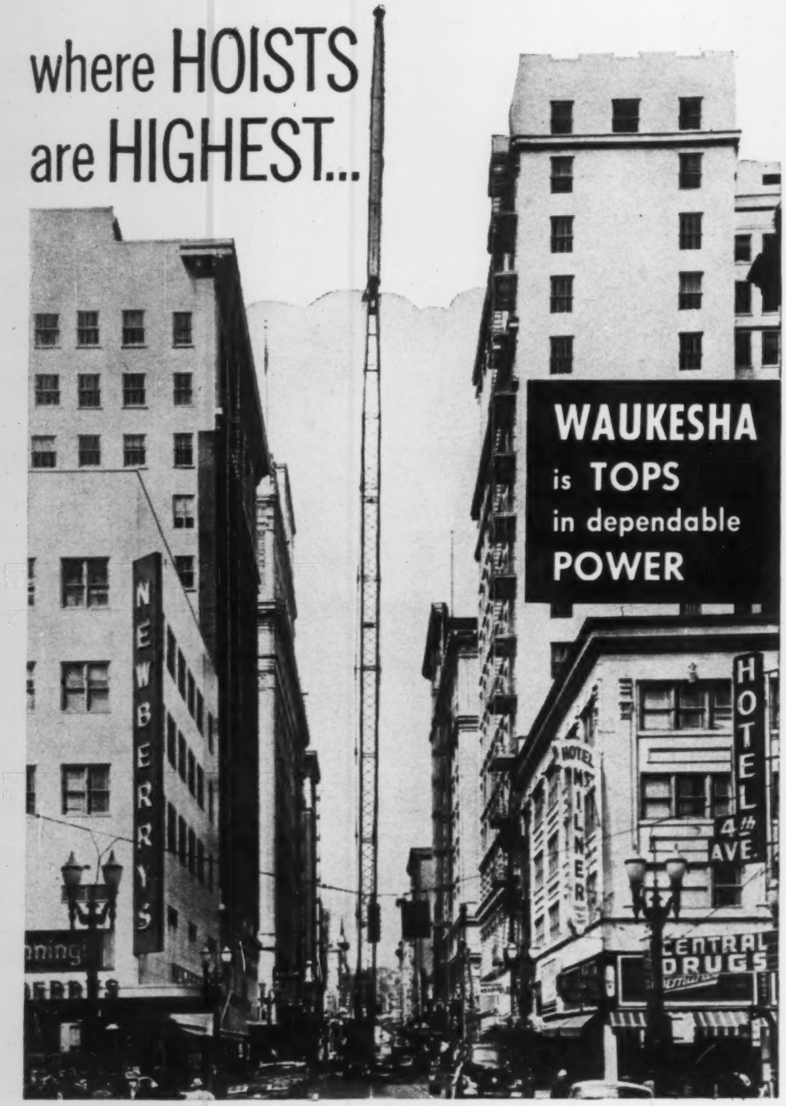
All this with a material so strong, and with such a favorable modulus of elasticity that it may be used in light gauges with safety at low cost!

What are the architectural forms of Nickel Stainless Steels? How can you make the most of them? Get the answers in our new booklet "Architectural Uses of the Stainless Steels."

THE INTERNATIONAL NICKEL COMPANY, INC.
67 Wall Street New York 5, N. Y.

INCO NICKEL

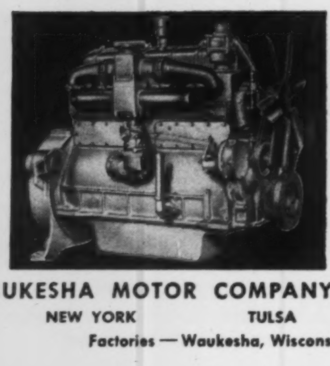
NICKEL MAKES STAINLESS STEEL PERFORM BETTER LONGER


where HOISTS are HIGHEST...
WAUKESHA is TOPS in dependable POWER
NEWBERRY'S
HOTEL 4th AVE.
HOTEL MILNER
CENTRAL DRUGS

A 15-story hoist! Air conditioning equipment had to go all-the-way-to-top of the Yeon Bldg. in downtown Portland. With a 228-ft. crane boom, reportedly the largest ever used in Oregon . . . a Manitowoc 2900 sixty-ton crane, mounted on a Pierce carrier . . . *and Waukesha Engines* powering both crane boom, and carrier—Don L. Cooney, Inc., Tacoma, experienced operators, and owners of crane, did a smooth, expert job. Long boom jobs take less time, cost less with dependable Waukeshas.

Powering Crane (boom)—135 Series Waukesha Gasoline Engine, six cylinders, developing up to 153 max. hp.

Powering the Carrier—145 Series Waukesha Gasoline Engine, six cylinders, developing up to 263 max. hp.



525

WAUKESHA MOTOR COMPANY • WAUKESHA, WISCONSIN
NEW YORK TULSA HUNTINGTON PARK, CALIF.
Factories — Waukesha, Wisconsin; Clinton, Iowa; Houston, Texas

New Product Briefs

Portable Utility Pump

Multi-purpose pump delivers 55 gpm, weighs 40 lb. Powered by a 2½ hp gasoline engine with a recoil starter. Has 1¼ in. suction and discharge ports. PEERLESS PUMP HYDRODYNAMICS DIV., FMC CORP., 2005 NORTHWESTERN AVE., INDIANAPOLIS, IND.

Aluminum Corrugated Pipe

Spiral corrugated aluminum pipe in 6, 8, 10, and 12-in. dia. For underdrain and downdrain pipe in highway and general construction work. Perforated or unperforated in 18, 16, and 14-gage wall thicknesses. KAISER ALUMINUM & CHEMICAL CORP., OAKLAND 12, CALIF.

Automatic Pump Control

Regulator for pumps driven by variable speed motors or with magnetic drives. Pressure or float operated. Will cause the speed of the pump to increase or decrease in relation to liquid level or pressure changes. HEALY-RUFF CO., ST. PAUL 14, MINN.

Masonry Adhesive

Adopox adhesive, a reinforced-polymer resin, for bonding granite, limestone, marble and other facade materials. Will fill 1½-in. gaps between granite and masonary wall. Two-hour pot life, four hours to set. ADHESIVE PRODUCTS CORP., 1660 BOONE AVE., NEW YORK 60, N. Y.

Corner Trowel

The Korner Tool has angled blade edge for easy distribution of cement or plaster into right angled corners. Angled handle keeps trowler's knuckles away from corner. HOWARD HARDWARE PRODUCTS, INC., 250 ELIZABETH AVE., NEWARK, N. J.

Drum Control

Air-operated remote control for truck mixer drums. Allows driver to regulate concrete flow from drum while standing at end of chute or at distances up to 30 ft from truck. CHAIN BELT CO., MILWAUKEE 1, WIS.

Towed Sweeper

Improved Palmer Sweeper has 7-ft-wide rotary broom powered by 9-hp engine. Can be towed behind pick-up truck or light tractor. Trashbin has 1¼-cu-yd capacity. Broom height adjusted by hand crank. PALMER ENGINEERING & MACHINERY, INC., LINCOLN, NEB.

Dump Trailer

PR619C Rear Dump Trailer, with high-strength steel, has payload capacity of 27 tons. Matches Caterpillar's 280 HP 619C Diesel Tractor. ATHEY PRODUCTS CORP., 5631 WEST 65TH ST., CHICAGO 38, ILL.

R B&W tells of new economies in structures bolted with A325 bolts

RB&W is presenting results of its cooperative shop bolting surveys to technical groups like the meeting of a major steel fabricators' association pictured above.

The surveys show that two A325 bolts, two nuts and two washers substituted for three regular high-strength bolts, three nuts and six washers in bearing-type connections give up to 40% savings in fastener costs alone. On top of this, they confirm the substantial increase in productivity through bolting.

But many engineers and architects lose the economic advantage of the new ASTM A325 bolts. Why? During the discussion period that followed the above talk, fabricators pointed out that structural designers are still using the old specifications instead of applying the latest Research Council specifications for joint design.

Many fabricators themselves don't fully realize the economy of A325 bolts in bearing-type connections allowing lower bids on structural jobs.

Since 1954, RB&W has pointed out technical-economic advantages of high-strength bolts over rivets. Now, large-head, short-thread A325 structural bolts make possible even greater economies. They mean savings in connecting and construction costs, more competitive steel structures, buildings that go up faster to produce income sooner, and industrial plants that better withstand vibration. It's up to you to put them to work.

Write for a copy of technical bulletin HHS-1. Russell, Burdsall & Ward Bolt and Nut Company, Port Chester, New York.

RB&W
117th year

Plants at: Port Chester, N. Y.; Coraopolis, Pa.; Rock Falls, Ill.; Los Angeles, Calif. **Sales office and warehouse at:** San Francisco, Calif. **Sales offices at:** Ardmore (Phila.), Pa.; Pittsburgh; Detroit; Chicago; Dallas. **Sales agents at:** Cleveland; Milwaukee; New Orleans; Denver; Fargo.

LARGEST INDEPENDENT PRODUCER OF HIGH STRENGTH BOLTS FOR CONSTRUCTION

What gives you confidence in a company? One answer is speed. And The Fund, with offices networking the nation, is geared for prompt, accurate service, geared to deliver **all** your insurance needs, including Construction Bonds, Workmen's Compensation, Public Liability, Crime and Builder's Risk. By servicing your **total** account, The Fund can often save you money, lower your bid. Ask your insurance agent or broker to insure through **The Fund of Experience.**

CENTRAL BONDING OFFICES:
3333 CALIFORNIA STREET, SAN FRANCISCO
110 WILLIAM STREET, NEW YORK
Branch Offices in Principal Cities in America

The **FUND** *Insurance Companies*
FIREMAN'S FUND INSURANCE COMPANY
HOME FIRE & MARINE INSURANCE COMPANY
NATIONAL SURETY CORPORATION

NO POWER NEEDED for these Sound Powered **TELEPHONES**

TERMINAL BOX

Write for catalog

They operate in any emergency over a distance of many miles. Can be moved with the job as it progresses or serve permanently. Indoor and outdoor models. Selective ringing, common talking.

HOSE-McCANN TELEPHONE CO., INC.
25TH ST. & 3RD AVENUE. BROOKLYN 32, N. Y.

Books

Highway Drainage Explored

DESIGN CHARTS FOR OPEN CHANNEL FLOW—Department of Commerce, Bureau of Public Roads, 105 pages. (Paper covered.) Superintendent of Documents, U.S. Government Printing Office, Washington 25, D.C. 70 cents

Third in a Bureau of Public Roads series on hydraulic design of highway drainage structures, this volume mainly contains material that appeared previously in the Highway Drainage Manual prepared by the Public Roads Regional Office in Hagerstown, Md.

The book has 82 charts for rectangular, trapezoidal and triangular channels; circular and oval pipe channels; and pipe-arch channels.

It is intended as a handbook for the designer already familiar with the subject, but, it includes a brief discussion of open-channel-flow principles. Also included are recommended values for n in the Manning formula, permissible velocities in earth and grass-lined or weed-lined channels, and instructions for constructing charts like those given.

Just Published

THE CONSTRUCTION OF GOTHIC CATHEDRALS—by John Fitchen. 344 pages. Oxford University Press, 417 Fifth Avenue, New York 16, N. Y. $10.10.

INTRODUCTION TO ENGINEERING MECHANICS—by John V. Huddleston. 491 pages. Addison-Wesley Publishing Co., Inc., Reading, Mass. $9.75.

FLOW OF FLUIDS THROUGH POROUS MATERIALS—by R. E. Collins. 270 pages. Reinhold Publishing Corp., 430 Park Ave, New York 22, N. Y. $12.50. Second Edition.

PRACTICAL DESIGN OF STRUCTURAL MEMBERS—by Thomas A. Lucy. 432 pages. F. W. Dodge Corp., 119 West 40th Street, New York 18, N. Y. $12.00.

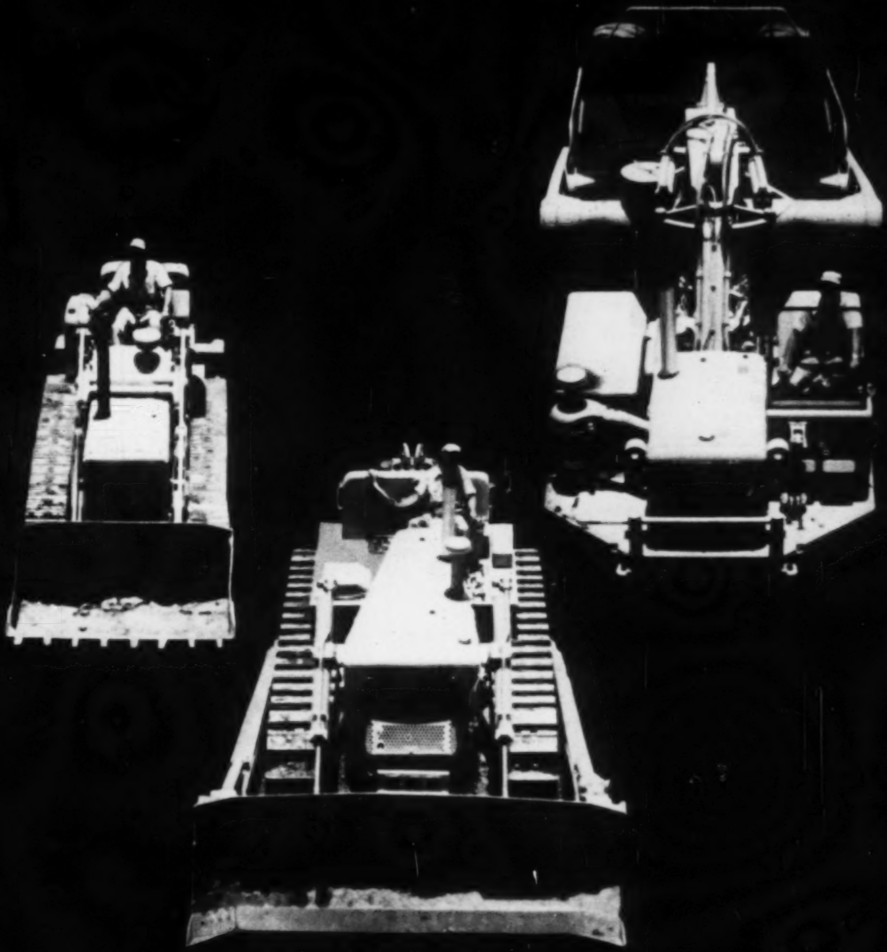
HANDBOOK OF FLUID DYNAMICS—Victor L. Streeter, editor in chief. 1240 pages. McGraw-Hill Handbook Series, 330 West 42nd Street New York 36, N. Y. $24.00.

WATER SUPPLY AND WASTE DISPOSAL—by W. A. Hardenbergh and E. A. Rodie. 503 pages. International Textbook Co., Scranton 15, Pa. $11.00.

ECONOMICS OF A MULTIPLE-PURPOSE RIVER DAM—by N. V. Sovani and Nilakantha Rath. Report of an Inquiry into the Economic Benefits of the Hirakud Dam. 390 pages. Asia Publishing House. Distributed in the U.S. by Taplinger Publishing Co., 119 West 57th St., New York 19, N. Y. $7.00.

OPTICS IN EQUIPMENT FOR THE UTILIZATION OF SOLAR ENERGY. Translated from Russian. 257 pages. Office of Technical Services, order AEC-tr-4471, U. S. Dept. of Commerce, Washington 25, D. C. $3.50.

(*Books continued p. 73*)



CATERPILLAR REPORTS

On the following pages:

Why three different Cat power shifts?

How loader power shift cuts cycle time . . .

Production test—D8 PS vs. D8 DD

"Hit the floorboard and let 'er roll"

How rugged is Cat power shift?

Why you get more production from a Cat power shift:

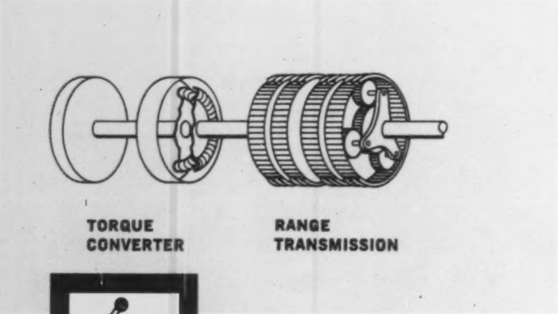
THREE DIFFERENT

THREE DIFFERENT

Any workable power shift transmission has great advantages over direct drive. By doing much of the operator's routine physical work for him, it reduces fatigue, lets him work faster and more productively.

So, if power shift is good, why not pick one proven type of power shift transmission and use it on all types of machines? Many earthmoving manufacturers do just this and come up with good results.

Unfortunately, "good" isn't necessarily "best." No one general purpose power shift transmission can get the *best* production out of every type of machine. So Caterpillar builds three different



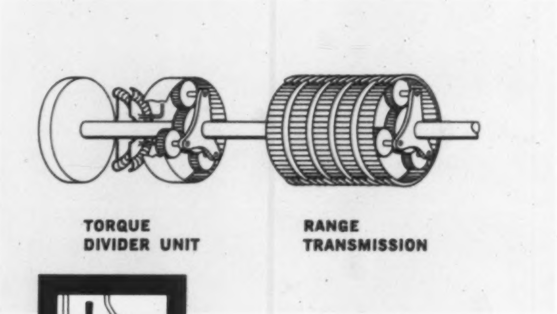
LOADER TRANSMISSIONS

Front-end loaders—both wheel and track-type—work on fast, short cycles. They crowd, dig, reverse and turn, dump, back away and crowd the pile again. They don't move far, but they move fast, cycling a couple times a minute. Shifting and bucket action must be fast and effortless if the operator is to keep up the pace all day. Maximum bucket power is needed to get full loads every time.

Full torque converter drive coupled with a power shift transmission is the combination for this application. It allows the operator to crowd the pile hard without pulling the engine down, thereby maintaining full power to bucket controls.

Travel is too short and variable to realize the efficiency of direct drive. The automatic matching of speed and torque to job conditions makes full torque converter drive the best. The operator need only watch the bucket and where he is going. When he is ready to change direction, he simply moves one short lever and he's off in the opposite way.

Power shift is standard on all wheel-type Cat Loaders and on the 977H and 955H track-type Loaders.



CRAWLER TRACTOR TRANSMISSIONS

Crawler tractor work has some of the features of loader work, plus longer travel. This application can use the advantages of both torque converter and direct drives. Take a typical job—dozing. Torque converter drive automatically provides the high torque multiplication without shifting to meet the changing load conditions while digging. But direct drive is better suited for drifting the load. Direct drive is more efficient, applying most power for pushing the load steadily for faster cycles, more positive control, greater economy.

Since there are advantages in both methods of drive, Caterpillar combines them in its power shift transmission for crawler tractors. Power is sent to a three-speed, directional transmission through a torque divider unit, with approximately 60% of engine torque multiplied by a converter and 40% bypassing it.

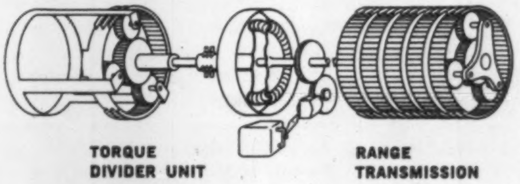
Single-lever power shifting provides instant response, up or down, on the go, in three speed ranges, forward and reverse. Direction can be changed instantly without stopping.

Power shift is standard on the D9G, optional on the D8H.

JOBS—TRANSMISSIONS

application-matched power shift transmissions for its loaders, crawler tractors and wheel tractors.

Their basic components are similar. But each transmission is designed to get the *most* production from the type of machine it is used in by matching its particular operating requirements.



WHEEL TRACTOR TRANSMISSION

As in the case of crawler tractors, there are advantages in both direct drive and torque converter drive for wheel tractor-scrapers. Variable torque multiplication without danger of stalling the engine is needed when the going is tough, as during loading. But for running down the haul road, direct drive—and overdrive—is more efficient and economical.

However, a wheel tractor's need for torque converter action is considerably less than a crawler's. So in this version of the Cat power shift transmission, only 25% of the torque is multiplied by the converter while 75% bypasses it.

This single-lever transmission incorporates a speed-sensing device that automatically provides three types of drive to the three-speed range transmission—for nine speeds with just three shifts. The torque converter is used only in torque divider drive—where it is needed to keep engine speed high. The converter is automatically locked out of direct drive and overdrive in all three operating ranges for better efficiency.

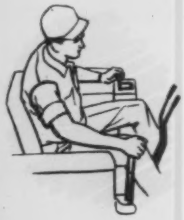
Power shift is standard on the 630A and 631A, optional on the 619C.

Phil Whitehouse, Carpentersville, Ill., bought a 977H because he believed that the power shift would be a great timesaver and production booster. And he was right. The operator has even noted that it outproduces a direct drive loader about 30% in the morning, but the gap widens to 50% as the day wears on.

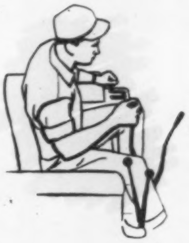
George Andruss, operator for Nelson Brothers, La Harpe, Kansas: "I've stripped 420,000 yards with this power shift D8 in 1190 hours. I figure I pick up about 10 minutes more production an hour compared to a stick shift tractor. And I still feel good at the end of the day. I also like the positive, direct drive feel you get with the power shift."

Frank Hess, co-owner of Hess Construction Co., Long Beach, Calif., says 631s climb hills better than any other machines he's tried. "Automatic shifting really pays off here. The operator doesn't have to worry about a thing—it shifts automatically to make full use of engine power and to keep moving without slowing down. They shift so quick you don't even notice the smaller grades."

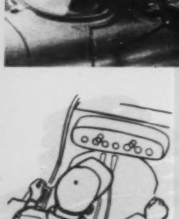
How Cat LOADER POWER SHIFT cuts time...



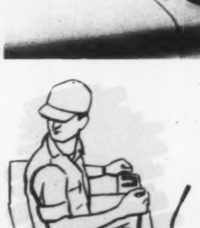
1 Crowding the pile demonstrates the value of the Cat torque converter drive when coupled with power shift transmission. Full engine torque and power are transmitted through the torque converter in the transmission. Result: the machine may reduce speed rapidly yet keep pushing hard without slowing the engine, and maximum hydraulic power is maintained to get full bucket loads fast.



2 Fast reversing when bucket is full. With a full bucket, the operator is ready to back up. A simple flick of the wrist moves the power shift lever into reverse. At the same time, his right hand pulls back the lift lever. The automatic kickout then takes over, positioning the bucket at dumping height. Operator is free of all controls to give full attention to maneuvering the machine.

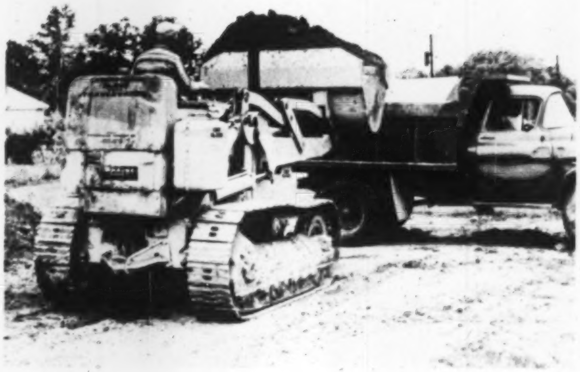


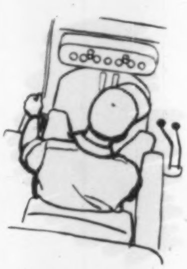
4 Fast dumping. A finger-touch on the transmission lever puts the machine in neutral, while the right hand moves the dumping lever. As bucket empties, operator puts bucket control into tilt-back position and flicks power shift lever into fast reverse. Bucket positioner again takes over, automatically tilting bucket back to proper digging angle as machine backs up.



5 Fast return. Operator watches where he's going—not the controls, quickly shifts to reverse as bucket dumps. Right hand pushes both bucket controls forward, kickout automatically positions bucket for digging angle. Then right hand is free for steering. From crowding the pile to backing from truck, the 955H "never stops"—and handling is effortless.

increases production





3 Fast approach after turning. Operator shifts small lever to forward in one easy movement. Again, response is automatic, practically instant. Cat power shift transmission can be shifted from fast reverse to full forward, without jerking, because of the modulated hydraulic control of its oil clutches. Shifting is always a one-hand operation—no clutching, no stopping.

"Controls are so easy to handle on our Cat power shift 955, the operator keeps up a pace—all day long—that would wear him out on old-style machines in a couple of hours"—reports Curtis Geoghegan, of Lyndon, Kentucky.

Loaders call for fast shifting (and fast bucket action). That's why automatic matching of speed and torque, provided by full torque converter power shift, best matches this type of machine to job conditions. How well does it do?

Curtis Geoghegan expects more from any new model. He figured the power shifting 955H would produce about 25% more than the old direct drive model. "That would be more than enough to make it a good investment," he said. "But were we surprised! This loader is so fast and easy to operate we are getting at least 50% more production—all day long!"

Watching his loader work shows why he gets this increased production: plenty of power, live action hydraulics, automatic bucket controls and fast, job-matched power shift.

NELLO L. TEER C

CAN YOUR WHEEL LOADER MATCH THIS?

17 tons loaded in 1.3 minutes, that's average production of five trucks loaded at Nello L. Teer's quarry near Durham, North Carolina.

It takes more than a good power shift on a wheel loader to consistently produce more. Compare Nello L. Teer's 2¾-yard Cat 966 with another make loader (with a bigger bucket) on the same job. "I can load up to 100 tons per hour more with the 966," said the operator. The reason? "It's the fast power shift transmission, fast lift and drop of the bucket, fast steering and short turning radius, and the automatic bucket positioner."

The whole machine is *fast*—it practically "bounces off the pile." And with this speed there's an ease of operation that keeps the operator feeling fit even at the end of the shift. The 140 HP 966 is the largest of three Cat wheel Loaders.

How *much* does a Cat Crawler Tractor *power shift* increase production?

The Cat D8 Series H has proven its cost saving and production superiority over other tractors on job after job. But how does the power shift D8 compare with the direct drive—does the additional 7% hourly owning and operating cost pay for itself?

Experience and many tests have shown that it does—by a wide margin. On one recent test, both models were operated side by side to compare dozing ability:

Material—clay with low sand content

Conditions—pit 50′ long; drift distance 150′

Average hourly production—direct drive: 145 b.c.y.
power shift: 185 b.c.y.

You might not get this same yardage on your job, but you should get the *27.6% increase!* And, even considering the higher cost of the power shift, it still shows a cost advantage of 17.8%.

What made the big difference? It wasn't the load on each pass. Each machine averaged 4.5 yards per trip. But the power shift D8 made *more trips* in the same time.

With power shift, the operator had practically effortless control. Under his left hand was one small lever that let him change direction or speed range in a split second—no clutching, no lost time. The operator started digging in "second"—then shifted down on-the-go to "first" to get a full blade load in a hurry. Just a flick shifted it back up to "second" for fast drifting. Shedding the load, another easy move swung the lever around into high-speed reverse for a fast return. Quick, easy shifting gave shorter cycle times.

Reduced operator fatigue permits the efficiency of Cat power shift Crawler Tractors on many jobs to be estimated at 55 minutes per hour instead of the usual 50 minutes.

Not only is the operator more efficient, but machine efficiency is increased by the exclusive torque divider design of this power shift transmission. This gives all the advantages of torque converter drive while retaining the desirable characteristics of a direct drive machine.

But the only place to prove the advantages of the Cat power shift is on *your* job. There you can compare performance with present rigs—see how much it will do for you.

"HIT THE FLOORBOARD AND LET 'ER ROLL"

That's how to get the most out of Cat wheel Tractor power shift ...how it will best adjust automatically to job conditions.

"There's only one way to drive this machine: push it to the limit all the time . . . hit the floorboard and let 'er roll. When you keep a heavy foot on the accelerator, that automatic shift does most of the work for you."

Good advice from roadbuilder O. W. Howard of Madisonville, Texas. "At first," he says, "you have to kind of get used to a big rig that's so easy to operate. But it doesn't take long on top of the 631s before you ride 'em for top production."

Cat wheel Tractors *are* easy to operate—you can push them hard in any terrain, under all ground conditions. The shift dial tells you when to shift into one of the three basic speed ranges, and the automatic transmission shifts up (or down) through three types of drive in each range for a total of nine forward speeds—more usable speed than any other rigs on the market. "Our 631s," says Howard, "give us the exact speed for every job condition we encounter practically without effort—no clutching, no hunting for the right gear."

In sticky going on Howard's 2.5-mile section of Interstate 45, his 631s have been sprinting out of the cut with 22-yard average loads of gummy, hard-to-handle Texas dirt. "Power shift does the trick," he says. "That 631 pulls full horsepower out of its diesel whether it's in the cut or barreling along the haul road."

Nothing too complicated about the Cat power shift either. It's a simple mechanical system giving you a torque converter's ability to balance speed and power and the efficiency of direct drive and overdrive. The converter in the exclusive torque divider eliminates engine stalling during loading, keeps engine speed high. And when you're shifting up it cushions the power train. For high-speed hauling the transmission also provides direct drive and overdrive in each range for fast acceleration and a top road speed of better than 31 MPH on the 631—over 40 MPH on the 630.

THREE-TO-TWO PRODUCTION PAYOFF

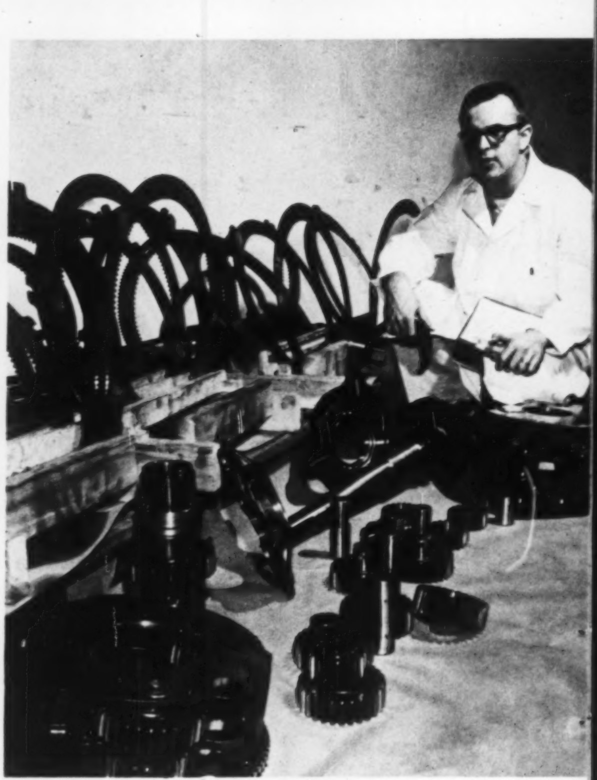
Speed like that pays off: Arthur Fleming, 631 operator for Armstrong & Armstrong, Roswell, N. M., highway contractors, says he's been getting three trips for every two by competitive units on Armstrong's 7-mile Interstate 10 spread. In the pit, pulling away from the pusher, he shifts up to 2nd range in 100-150 feet, on to 3rd range in 250 feet on the level in packed sand. He accelerates coming out of the pit, up a 6% grade.

"Automatic shifting is a big help on the fill," says Fleming. "I can watch where I'm going . . . makes it easier to spread the material evenly." (State highway specifications call for 4-inch compacted lift.) "The 631 gives me a smooth, stable ride," he continues. "I can stay in my seat at top speeds over ground so rough you have to slow down other machines. The scraper is easy to load . . . that new cable control (it's air actuated) helps me to pump in good loads every pass."

Speed . . . power . . . maneuverability . . . stability . . . easy operation . . . unitized design for servicing . . . they're all there in Cat wheel Tractors to give you greater productivity and lower costs. Power shift, providing nine speeds with only three shifts, is standard on the 631 and 630, optional on the 619.

HOW RUGGED IS CAT POWER SHIFT?

Well, after 6100 hours of this...



a factory check showed this...

The Ohio River Collieries Co. liked Caterpillar's offer: namely, to trade them a power shift transmission for the old one in their D9E shown above.

Obviously this sounded good to the Cheshire, Ohio, firm. Their particular D9 had seen 6100 hours of the heaviest kind of duty. They'd worked it 22 hours a day, seven days a week, ripping and 'dozing sandstone, shale and a very hard cherty blue slate.

But it was a good proposition for Caterpillar, too. As part of a continuing program of power shift transmission research and evaluation of field performance, regular spot checks are made of transmissions that have seen rough field service.

How had this one stood up? Measurements showed that wear on all clutch surfaces and gears was slight—dimensions were still within allowable wear, except for the pinion gear, which showed normal spalling after this much use.

For the best in new and used machines, and the best in parts and service—see your Caterpillar Dealer

Caterpillar Tractor Co., General Offices, Peoria, Illinois · Caterpillar Americas Co., Peoria, Illinois · Caterpillar Overseas S.A., Geneva · Caterpillar of Australia Pty. Ltd., Melbourne · Caterpillar Brasil S.A., São Paulo · Caterpillar Tractor Co. Ltd., Glasgow · Caterpillar of Canada Ltd., Toronto

CATERPILLAR

Caterpillar, Cat and Traxcavator are Registered Trademarks of Caterpillar Tractor Co.

DIESEL ENGINES • TRACTORS • MOTOR GRADERS • EARTHMOVING EQUIPMENT

Form 717-34361-DE128

Printed in U.S.A.

. . . Books

DESIGN AND CONSTRUCTION OF FOUNDATIONS—by G. P. Manning. 236 pages. Concrete Publications Ltd., 14 Dartmouth Street, London S.W.1, England. $6.00

RECENT ADVANCES IN HEAT AND MASS TRANSFER — Editor J. P. Hartnett. 404 pages. McGraw-Hill Book Co., 330 West 42nd Street, New York 36, N. Y. $9.75

EVAPORATIVE COOLING OF CIRCULATING WATER—by L. D. Berman. 392 pages. Pergamon Press Ltd., Headington Hill Hall, Oxford, England. $20.00

CUMULATIVE INDEX TO ASCE PUBLICATIONS. United Engineering Center, 345 East 47th St., New York 17, N.Y. $20.00, 50% discount to public and school libraries.

BASIC PHYSICS OF THE SOLAR SYSTEM—by V. M. Blanco and S. W. McCuskey. 307 pages. Addison-Wesley Publishing Co., Reading, Mass. $7.50

"AUTOMATIC" SPRINKLER HYDRAULIC DATA, 1961 EDITION—by Clyde M. Wood. 300 pages. "Automatic" Sprinkler Corp of America, Box 360, Youngstown, Ohio. $10.00

TABLES FOR ULTIMATE STRENGTH DESIGN OF REINFORCED CONCRETE BEAMS, JOISTS & SLABS—by James M. Cunningham, Haley W. Keister, Arthur W. Newett, James R. Phillips. 177 pages. CKNP Tables, P. O. Box 16434, Jacksonville 16, Fla. $4.95

STATICS-APPLIED MECHANICS, VOL. I. SECOND EDITION.—by George W. Housner and Donald E. Hudson. 277 pages. D. Van Nostrand Co, 120 Alexander Street, Princeton, N. J. $5.75

THE CITIZEN'S GUIDE TO PLANNING—by Herbert H. Smith. 106 pages. Chandler Davis Publishing Co., Box 36 West Trenton, N. J. $2.00

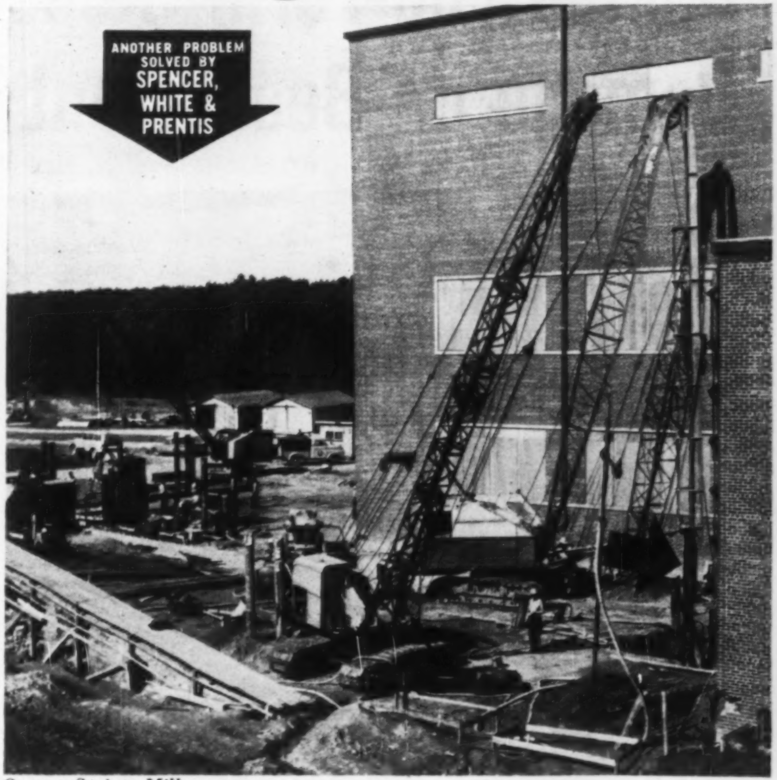
DENSITY ZONING. Urban Land Institute Technical Bulletin 42, 1200 18th Street N. W., Washington 6, D. C. $5.00

CONCRETE QUALITY CONTROL, AGGREGATE CHARACTERISTICS AND THE CEMENT-AGGREGATE REACTION. Highway Research Board Bulletin 275. National Academy of Sciences, 2101 Constitution Ave., Washington 25, D. C. $1.40

NON-DESTRUCTIVE DYNAMIC TESTING OF SOILS AND HIGHWAY PAVEMENTS. Highway Research Board Bulletin 277. National Academy of Sciences, 2101 Constitution Ave., Washington 25, D. C. $1.60

BRIDGE DESIGN STUDIES AND PILING TESTS 1960. Highway Research Board Bulletin 279. National Academy of Sciences, 2101 Constitution Ave., Washington 25, D. C. $1.80

Drive pipe piles 18" off plant without shocking turbines



Owner: Springs Mills
Project: Power plant addition, Lancaster, S. C.
Architects & Engineers: Robert and Company, Associates, Atlanta, Ga.

Problem: Install open end pipe piles for a foundation to bear heavy loads. Drive these piles without disturbing turbine generating equipment housed very close by (in structure at right). These were the foundation requirements for Springs Mills' power plant addition in Lancaster, S. C.

At Spencer, White & Prentis, to whom the job was awarded, problems of this kind are no novelty. We've been handling tricky foundation work of every shape, form and description for over 40 years.

Photo pictures pile driving in progress after oscillometer readings indicated vibrations at a minimum. Existing plant delivered power without interruption as the necessary 131 piles were installed. Big or small: when your foundation requires specialized skills, call this long-experienced specialist.

Catalog on request

Spencer, White & Prentis INC.
10 E. 40th St., New York 16, N. Y.
Detroit: 2033 Park Ave. • Chicago: 221 North LaSalle St. • Washington, D. C.: Tower Bldg.

Foundations Piling Underpinning Shoring Cofferdams Special Services

During Atlantic City's Worst Winter . . .

Coated Fab-Form Stops Salt Damage on Beachfront Hotel Job

Special Bonderized, baked-on red oxide coating on Pittsburgh Steel Company's Fab-Form "27" provided full protection against unusual corrosive conditions during winter construction of new four-story addition to the Marlborough-Blenheim Hotel, Atlantic City, N.J. Lengths from 6 feet 3 inches to 28 feet 3 inches were engineered to layout for faster, easier installation.

Pittsburgh Steel Company's new Coated Fab-Form "27" proved invulnerable to severe salt and weather conditions during winter construction of a modern new addition to one of Atlantic City's best-known Boardwalk hotels—the Marlborough-Blenheim.

Fifty thousand square feet of Fab-Form were installed as permanent steel centering for lightweight slabs on three floors and roof of the four-story, 77-unit wing that fronts at the center of the busy Boardwalk.

The problem of protecting materials from corrosion was complicated by these factors:

- Salty atmosphere of a beachfront site
- Addition of freeze inhibitor to wet concrete
- Exposure to weather elements when the worst winter on record delayed construction.

But the effects of exposure, corrosive additives and salt spray were stopped cold by Fab-Form's special Bonderized, baked-on red oxide coating—and at less cost than ordinary corrugated steel forms with a protective coating.

● **Other Benefits**—There are additional advantages for Fab-Form users, too. For instance, it's:

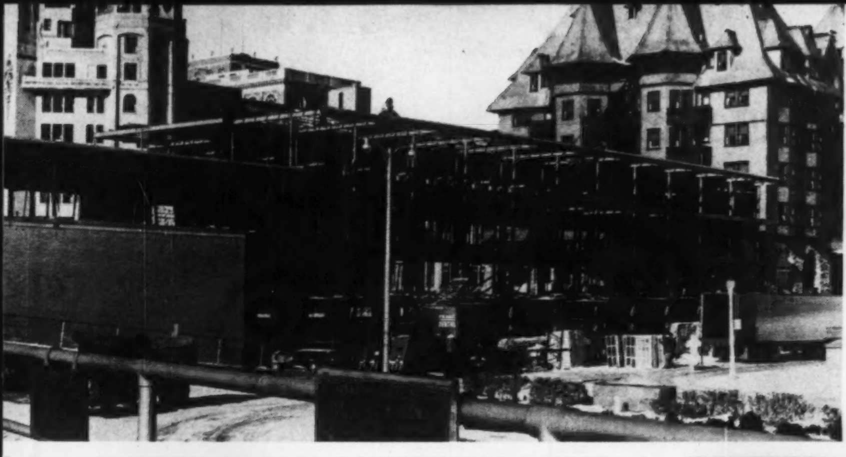
- Wider—32-inch cover width
- Longer—sheets up to 28 feet, 3 inches
- Heavier—27 gage steel

Here's how the builders of the Marlborough-Blenheim addition rate advantages of Fab-Form "27."

● **Architect** Stephen B. Hazzard, AIA, of Warrington, Pa.: "I approved Fab-Form because it saved money. And I knew that with Coated Fab-Form there was no decrease—if not a distinct increase—in quality."

● **Construction Supt.** Joseph R. Daly of R.A. Prendergast & Son, Atlantic City: "The Fab-Form coating provides all the protection we need against the anti-freeze-waterproofing additive we mixed with the concrete. It doesn't set up a foaming reaction and doesn't stain. Since it's prepainted, we don't have to apply a field coat before closing in."

● **Installer Foreman** Frank Capano of L&R Steel Construction Co., Haddon Heights, N.J.: "Fab-Form's longer and wider sheets definitely save time. With a four-man



Flanking Brighton Park at the center of the famous Boardwalk, the Marlborough-Blenheim's new 77-unit addition links the well-known resort hotel with shops and beach. Street level space accommodates shops and professional offices. Architect: Stephen B. Hazzard, AIA. Fab-Form distributor: United Steel Products Co., Trenton, N.J.

Installed on roof with special breather vent clips, Coated Fab-Form solved condensation problem, eliminated need of protective field coat on underside. Finished roof is lightweight aggregate, sloped from 4½ inches at edge to 2½ inches at center.

Fab-Form, attached with self-tapping screws over bar joists 24 inches o.c., is checked against floor diagram by Construction Supt. Joseph R. Daly and Installer Foreman Frank Capano before 2½-inch concrete floor is poured.

crew, we can lay about 7,000 square feet a day. The corrugations don't seem to dent like other types of decking and the primer coat doesn't wear off underfoot.

"But what I like best is the Fab-Form color. It's a lot easier on the eyes. The glare from bare metal decking can practically blind a man installing it. At times I've had to wear two pairs of sunglasses to cut down the glare."

Take advantage of Fab-Form's benefits on your next concrete floor or roof project. It's available plain or coated in heavy duty 25 gage or standard 27 gage steel. Ask your independent supplier or contact the nearest Pittsburgh Steel Office listed at the right.

▶ **See Sweets Catalog Section 2f**

Fab-Form®

Pittsburgh Steel Products

a division of **Pittsburgh Steel Company**

Grant Building • Pittsburgh 30, Pa.

DISTRICT SALES OFFICES

Atlanta
Chicago
Cleveland
Dallas
Dayton
Detroit
Houston
Los Angeles
New York
Philadelphia
Pittsburgh
Tulsa
Warren, Ohio

AASHO's New Chief: California's

"Urban transportation is the number one problem of the highway construction industry today," says J. C. Womack, California's state highway engineer, who took office last week as president of the American Association of State Highway Officials, (see p. 25).

Mr. Womack strongly feels that the over-all transportation needs (rail, highway and air) of urban areas must be correlated with all types of urban development—and that all groups involved (engineers, planners, developers and politicians) must work closely together for the best economic and social growth of U. S. cities.

J. C. Womack is probably the first AASHO president in a decade who has not placed development and continuation of the Interstate Highway System at the head of the highway problem list. Because of developments in the past year he considers the program at the federal and state level now to be a stable one.

Mr. Womack believes that the present stage of accomplishment on the Interstate Highway System has spotlighted the urban problem in many areas of the country. When the first Interstate money became available, California already had an extensive urban freeway construction program under way. So the new money served to speed that program. Many other states had to spend the initial Interstate funds on rural highways, because they weren't geared to urban highways.

URBAN TRANSPORTATION gets top priority from J. C. Womack (left). Here he discusses San Francisco freeways with J. P. Sinclair, C. F. Greene and L. L. Funk.

• **In a big business**—It's hard to single out any one person for major credit in a highway department as large as California's—a $550 million 1961-62 construction and maintenance budget with 15,000 employees nearly half of whom are engineers. But J. C. Womack has had as much responsibility as any individual currently with the department for the development of California's urban freeway system.

In 1948, just after the California legislature put California into the freeway construction business on a large scale, Mr. Womack was called to division headquarters in Sacramento from a district office staff job to become the first planning engineer for the department. He was in direct charge of working out details on a statewide basis of the freeway system from inception to the detailed design stages.

Promotions to assistant state highway engineer (planning) in 1955 and to deputy state highway engineer (engineering) in 1959 continued his direct responsibility for development of urban freeways.

Mr. Womack's appointment in 1959 as state highway engineer came somewhat abruptly. He succeeded J. W. Vickrey, who died within a few weeks of taking over the Division.

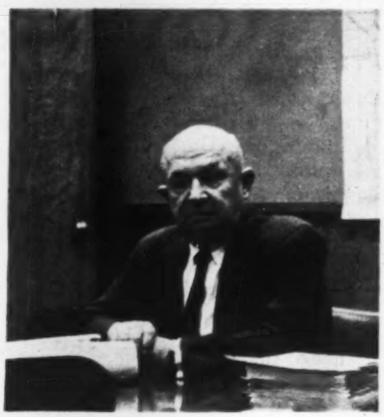
• **Out of the Northwest**—J. C. (for Jasper Cecil) Womack was born in Idaho in 1898 and studied civil engineering at the University of Washington. Like many other civil engineering graduates of 40 years ago, he began his career with a job on a railroad, the Great Northern. A few years later he switched to the Bureau of Public Roads, working out of its Portland, Ore., office.

In the Twenties, California began beefing up its state highway staff. The state hired away quite a few men from northwestern states. Among them was Charles H. Purcell of the Bureau of Public Roads in Oregon, who eventually became state highway engineer. In the summer of 1929, Mr. Purcell called J. C. Womack to offer him a job. At the time, Mr. Womack was in charge of a job in bleak drylands of eastern Oregon and the temperature was on the wrong side of 100 F. He accepted the job and the prospect of a temperate climate immediately.

For nearly 20 years, J. C. Womack worked in Marysville, Calif., in District III. He had many assignments in this predominately rural area (largest city is Sacramento and it includes much of the Sacramento Valley area as well as several major mountain passes). He successively was resident engineer, location engineer, assistant engineer of surveys and plans, maintenance engineer (during World War II), engineer of surveys and plans, construction engineer, and assistant district engineer.

Womack

SOUND legislation can prevent scandals.



SOUND civil service can eliminate graft.

• **Proud of his outfit**—Like most top people in the California Division of Highways, J. C. Womack is proud of the accomplishments and standing of the organization. Although several states have been under fire recently for graft, payola and scandal, California has been remarkably free of such charges.

He attributes this situation to several factors. In first place J. C. Womack puts good sound legislation, which permits a continuing program with freedom of action, yet effective controls.

Secondly he credits the success of the California highway development and the Division's freedom from major scandal to a sound civil service program. California's Division of Highways is civil service-staffed from the lowest to the highest job, the one that Mr. Womack holds. The top officers of the Division aren't susceptible to replacement with a change of state administration, and political bosses can't impose appointees at any level.

The highest professional rating at which the Division now hires people is junior civil engineer. Mr. Womack is probably the last head the Division will have who didn't begin at the bottom of the ladder.

• **Money makes a difference**—California attracts and keeps top-grade civil engineers by offering good pay, interesting work and job security. Salaries are not as high as Mr. Womack would like to have them, but he concedes they are adequate. Opportunities for advancement are plentiful. Only last month a bright 33-year-old design engineer was promoted to supervising highway engineer and a salary in the $950 to $1,155 a month range. He got the job through regular civil service procedures.

Because California, unlike many states, does all its own design work, instead of farming it out to consultants, the Division can provide challenging work to its engineers.

Further, the California highway program is a stable one. There are no large peaks and valleys that might tend to develop an unstable work force.

• **Minimum of politics**—Mr. Womack and the Division have good, non-partisan political relations in the state. The Division has the full support of the Democratic governor and the legislature now, just as it did a few years ago when the state administration was Republican.

The Division undergoes a fair amount of political harassment at local levels, mostly because of route locations. But Mr. Womack and his division engineers try to keep these to a minimum by holding plenty of public hearings and maintaining good community relations. There appears to be real resentment against the Division only in San Francisco, because of objection there to more elevated freeways and to a state-proposed route that would bisect Golden Gate Park.

The highway division doesn't have all the money it would like, but it has more than any other state and existing financing provides for $10.5 billion worth of freeway and expressway construction during the next 20 years (ENR Oct. 13, 1960, p. 89).

Formulas set up by the legislature control allocation of money to specific areas. The Highway Commission, an eight-man, politically appointed group, makes specific allocations within this framework. The Commission almost invariably follows Mr. Womack's recommendations.

SHORT CUT TO LONG LINES

Save Work and Speed the Job with NAYLOR Pipe and Wedgelock Couplings

For air, water and ventilating lines, you'll save time and money with this NAYLOR combination.

NAYLOR pipe is light in weight, easy to handle and install. Its lockseamed, spiralwelded structure assures extra strength and safety.

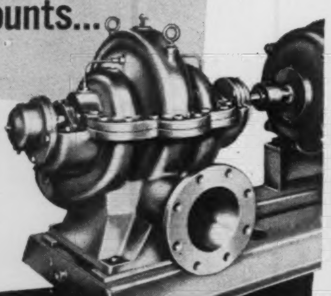
WEDGELOCK couplings provide a positive connection securely anchored in standard weight grooved ends. Speed the job. A hammer is the only tool required to connect or disconnect them. Available in low-pressure and heavy-duty types.

Write for Bulletin No. 59 on pipe, fittings and couplings.

NAYLOR PIPE Company

General Offices and Plant
1261 East 92nd Street, Chicago 19, Illinois
Eastern U. S. and Foreign Sales Office
60 East 42nd Street, New York 17, N. Y.

where performance counts...



count on WEINMAN PUMPS

Engineers . . . who demand rugged dependability to meet pumping needs . . . specify Weinman Pumps. That's because Weinman Pumps are simply designed and precision built of top quality materials for years of maintenance-free service.

A case in point . . . the Weinman Type L Split Case, Single Stage, Double Suction Pump. Designed for large capacity, high, medium or low head pumping applications, the Type L's wide range of industrial uses makes it ideal for moving liquids at rates up to 4000 g.p.m. against heads up to 400 feet. And, the horizontally split case makes inspection and maintenance of rotating parts fast and easy without removing piping.

The Type L is just one of many job-proven, job-fitted Weinman Pumps that makes your Weinman Pump Specialist a good man to know. To meet your pumping needs he'll give you the advice of experience. So, look him up in the Yellow Pages... or, write for Bulletin 1200.

THE WEINMAN PUMP MFG. CO.
290 SPRUCE STREET COLUMBUS 15, OHIO
CENTRIFUGAL SPECIALISTS

D. C. Cannon

J. R. Perini, Jr.

Management Changes at Perini

D. C. Cannon has been named an executive vice-president of Perini Corporation of Framingham, Mass. He will be replaced as president of Perini Quebec Inc. by Joseph R. Perini, Jr., former vice-president of the parent company.

A graduate of MIT, Mr. Cannon has been associated with Perini since 1932. He worked up through a variety of positions to head the Quebec company's construction program. At Perini Corporation, he will take charge of engineering and construction operations throughout the world.

Mr. Perini earned his civil engineering degree at Virginia Polytechnic Institute and studied business and accounting at the University of Hawaii and Boston University. He joined Perini Corporation in 1955 and has worked primarily with the Marine Division.

In addition to heading the Quebec company, he has been appointed vice-president of several other Canadian subsidiaries and will be responsible for all heavy construction in Canada undertaken by the associated Perini companies.

Puls Leaves Bureau of Reclamation

Louis G. Puls, chief design engineer of the Bureau of Reclamation at Denver, retired October 1 after more than thirty years of government service.

Since 1958 he has directed the design of dams, power and pumping plants, canals, and other structures for the Bureau's water resource development projects in 17 western states and Alaska.

Before joining the Bureau in 1933, he was a field engineer on construction of the Dnieprostory Dam and Powerplant in the Ukraine, USSR. During World War II he served with the Navy Civil Engineer Corps in the Pacific.

Mr. Puls is a member of the International Commission on Large Dams, and the International Commission on Irrigation and Drainage. After retirement he will enter private practice as a consultant.

Before, during, and after installation...
Transite never stops saving you money!

...ON WATER MAIN JOBS

Transite® speeds any water line installation. Its long lengths are easily and quickly handled. The Ring-Tite® joint means a tight seal at every coupling in the line! The result: a quality job at low cost!

...ON SEWER MAIN JOBS

Transite speeds assembly, means a bigger day's return. And the J-M Ring-Tite joint is your assurance that the line will pass leakage or infiltration tests. You "button-up" the job faster when you use Transite Sewer Pipe.

...ON SUBSURFACE DRAINAGE JOBS

Transite Underdrain Pipe means savings wherever subsoils must be stabilized. This new perforated pipe means savings to contractors, for Transite's long lengths, fewer joints, low material cost all add up to more profitable jobs.

...ON POWER OR PHONE CABLEWAYS

Transite Ducts mean narrower, shallower trenches . . . crews attain faster laying. Transite comes in long 10′ lengths . . . joins quickly and securely with a J-M Plastic Coupling. Pneumatic rodding means additional savings!

JOHNS-MANVILLE PRODUCTS
JOHNS-MANVILLE
Box 362, EN-10, New York 16, N. Y.

☐ Please send, without obligation, Contractor's Kit of cost-saving facts with Transite Pipe.

TRANSITE—THE PIPE DESIGNED WITH THE CONTRACTOR IN MIND

NAME________________

ADDRESS________________

CITY________________ZONE________

COUNTY________________STATE________

EARLY FORM REMOVAL

keeps valuable forms working for you, when Columbia Calcium Chloride is added to your concrete mix. Because initial set and early strength are both increased, especially below 70°F, you can finish concrete, remove and re-use forms in half the normal time. At 40°F, you get two-day strength in one day . . . seven-day test in just 3½ days. Use Columbia Calcium Chloride at 2% by weight of Portland cement in your concrete mix whenever temperatures drop below 70°F. Pittsburgh Plate Glass Co., Chemical Division, One Gateway Center, Pittsburgh 22, Pa. Offices in principal cities. In Canada: Standard Chemical Limited.

Columbia Calcium Chloride PPG chemicals

GUNITE
Since 1915
CONCRETE
SAND AND CEMENT
"Placed by Air"
GUNITE
BLO-CRETE WET-CRETE
REFRACTORIES
LINING, ENCASING, FIREPROOFING, REPAIRING
SEND FOR OUR BULLETIN NO. 20
GUNITE CONCRETE & CONST. CO.
1301 WOODSWETHER RD., KANSAS CITY 5, MO.
2016 W. Walnut St., Chicago 12, Ill.
1004 Market St., St. Louis 1, Mo.
3206 Houston St., Houston 9, Texas
Los Angeles — Denver
New Orleans - Minneapolis

146 SCREW JACKS to choose from

- 29 Models. 4-way and Ratchet Head types. 10 to 24 tons capacity.
- 5 Planer Jacks
- 8 Journal Jacks
- 3 Reel Jacks
- Complete lines of push-pull & shoring jacks; Trench and Timber Braces.

WRITE FOR CAT. M-60

SIMPLEX JACKS
RE-MO-TROL UTIL-A-TOOL JENNY ROL-TOE

TEMPLETON, KENLY & CO.
2553 Gardner Road Broadview, Illinois

Business

Seneca T. Ferry, general manager of the Fort Wayne, Ind. general contracting firm of A. C. Wermuth for 11 years, will become general manager of W. A. Sheets and Sons, Inc. of Fort Wayne.

Leonard Spiegel has joined Konski Engineers, consultants of Syracuse, N. Y. as chief structural engineer. He is a former associate of Barstow & Mulli-

Kenneth B. Morris has been appointed director of New York University's Plant and Properties Division to supervise construction and maintenance of their $141 million physical plant. He was projects manager for the Stewart Muller Construction Company of White Plains, N. Y.

Arthur J. Kuljian, president of the Kuljian Corp. of Philadelphia, has announced selection of that company to provide engineering services for construction of a multi-million-dollar electric power station at Quetta, West Pakistan.

Thomas M. Bennett has been appointed administrative manager of The Lummus Company's Engineering Development Center in Newark, N. J. after 15 years association with the company. The firm designs, engineers and constructs processing plants throughout the world.

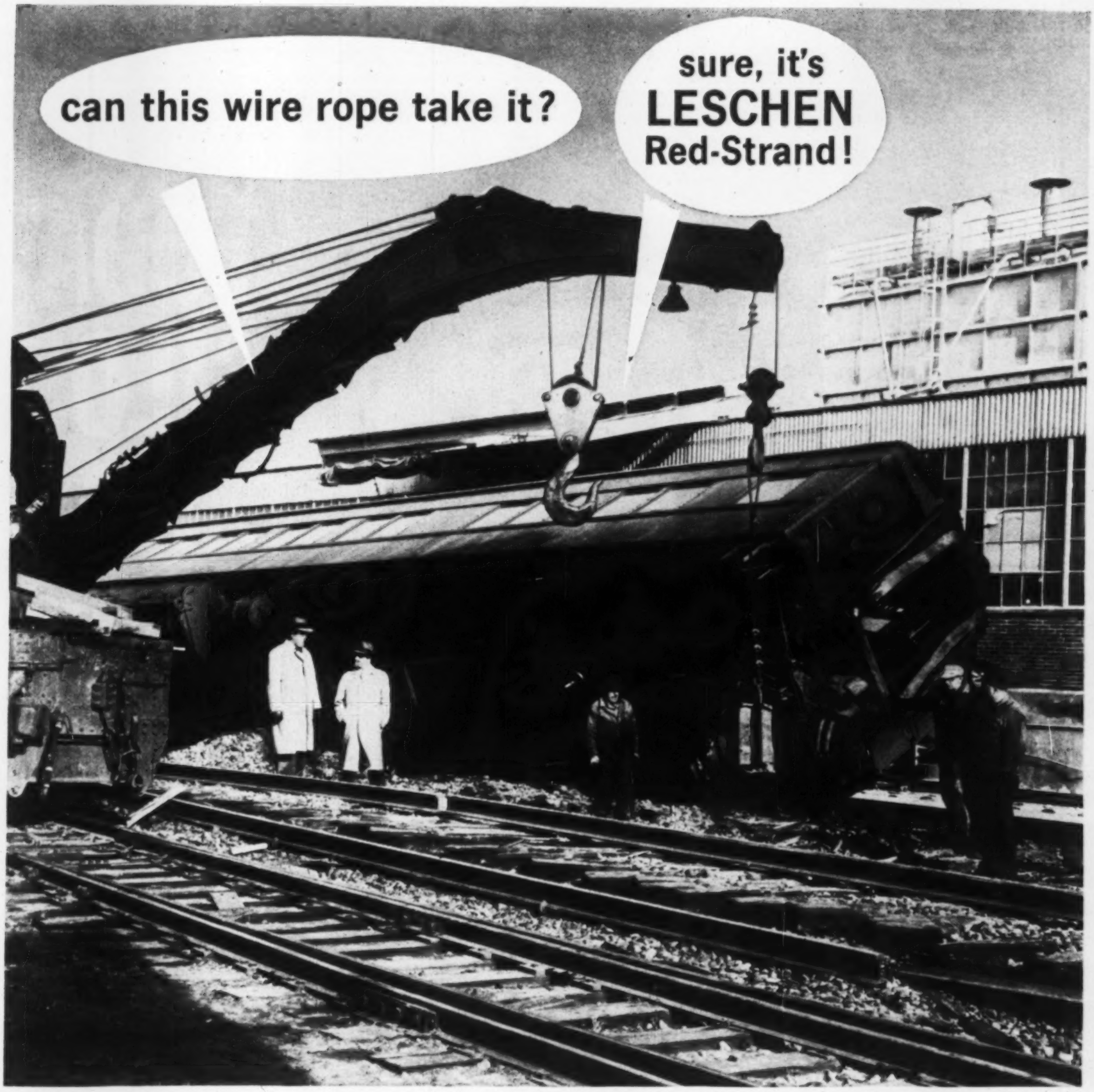
The New York engineering subsidiary of The Fluor Corporation, Ltd. of Los Angeles has been renamed Fluor-Singmaster and Breyer, Inc. Formerly known as Singmaster and Breyer, Inc., the organization has recently moved from 420 Lexington Ave. to 100 Park Ave.

Retirements

John McGillivray, chief engineer of the U. S. Bureau of Public Roads in the regional design office in Vancouver, Wash., retired with 36 years service in the agency spent in the Pacific Northwest and including several difficult reconnaissance trips in Alaska during the war. In 1958 he was awarded the Department of Commerce Meritorious Service Silver Medal.

Carl E. Vogelgesang, chief engineer for the Indiana State Highway Department, has retired after 40 years with the department. One time president of the Indiana Section, ASCE, he headed the Mississippi Valley division of the American Association of State Highway Officials in 1949 and was named Indiana "Engineer of the Year" in 1959.

H. W. Overstreet has retired as Deputy Florida State Highway Engineer after 31 years' service with the Road Department.

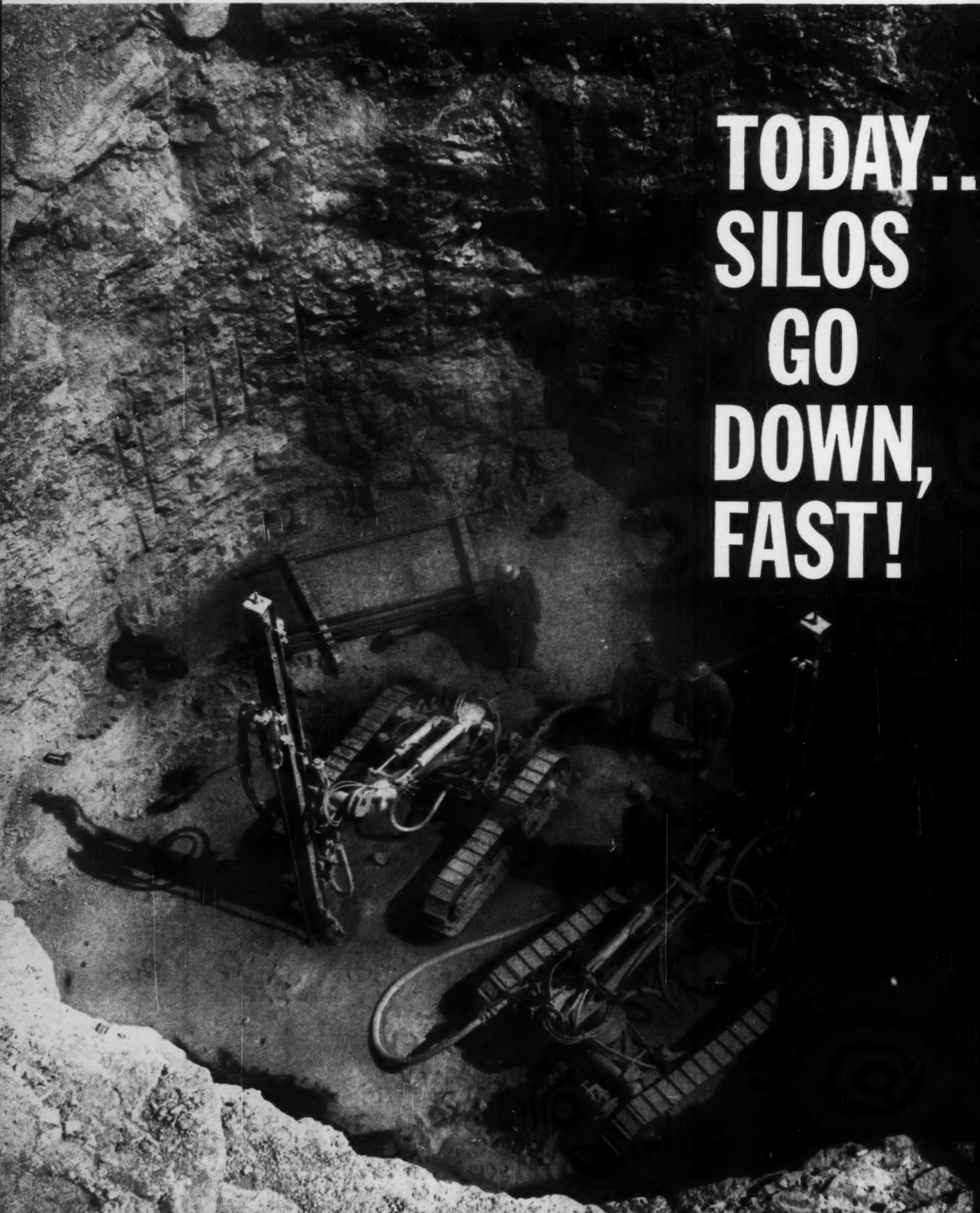

can this wire rope take it?
sure, it's LESCHEN Red-Strand!

LESCHEN WIRE ROPE DIVISION
LESCHEN
WIRE ROPE
H.K. PORTER COMPANY, INC.

You are on the right track here. For the big lifts or ordinary loads Leschen Red-Strand is universally accepted and demanded by wire rope users who expect and get their money's worth. • Constant research and development have provided Leschen users with a complete range of sizes and types for every conceivable task. This versatility, backed by Leschen's distribution and technical services, is your assurance of wire rope dependability for every job. • *Accept nothing less than Leschen.* For the name of your nearest Leschen distributor write: Leschen Wire Rope Division, H. K. Porter Company, Inc., 2727 Hamilton Avenue, St. Louis 12, Missouri.

PORTER

LESCHEN WIRE ROPE DIVISION
H. K. PORTER COMPANY, INC.



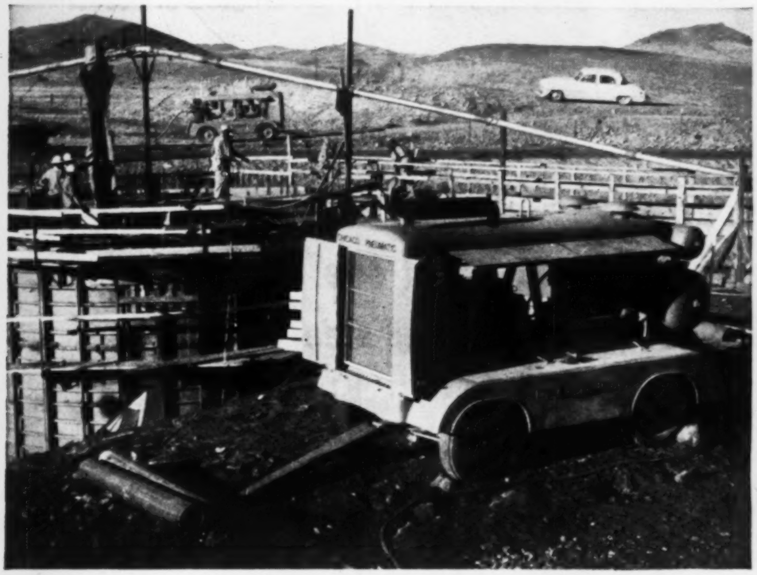
G-900 TRACDRILS sink 2½-inch blast holes in the excavation of a launch control center.

TODAY..
SILOS
GO
DOWN,
FAST!

T-650W REICHdrill sinks a burn hole for a missile silo. Capacity: hole size to 7 ⅞-inches: Down pressure: 34,000 lbs.

Today, more silos go down than up . . . and they go down, fast! On many of these jobs extreme conditions are commonplace. Many top missile base contractors find that the combination of CP Drilling and Construction Equipment, backed by highly efficient "Power Vane" Rotary Compressors, will beat any job condition . . . help them cut costs . . . maintain schedules. ■ CP TRACDRILS for more blast holes from every drilling position. Drill to left or right with boom at right angles to tracks, swing a full 180 degrees. Duplicate controls at turret and boom end save time and steps for drillers. ■ CP REICHdrills move quickly, reduce traveling time when drill sites are widely scattered. Hole sizes to 12 inches. ■ CP AIR COMPRESSORS for powering concrete placement and vibrating equipment, pumps, sinker drills, bolting equipment have established a reputation for staying power. "Power Vane" Rotary two-stage design permits continuous operation at pressures to 125 psig . . . lowers power consumption, reduces fuel costs. Fuel-thrifty, normally-aspirated engines maintain torque and power at all operating speeds . . . maintain efficiency at high altitudes. ■ FOR FULL INFORMATION on CP construction equipment, write to: Chicago Pneumatic Tool Company, 8 East 44th Street, New York 17, New York.

CP-69 SINKER drilling blast holes to clean up silo bottom. These tools handle easy, hit hard.

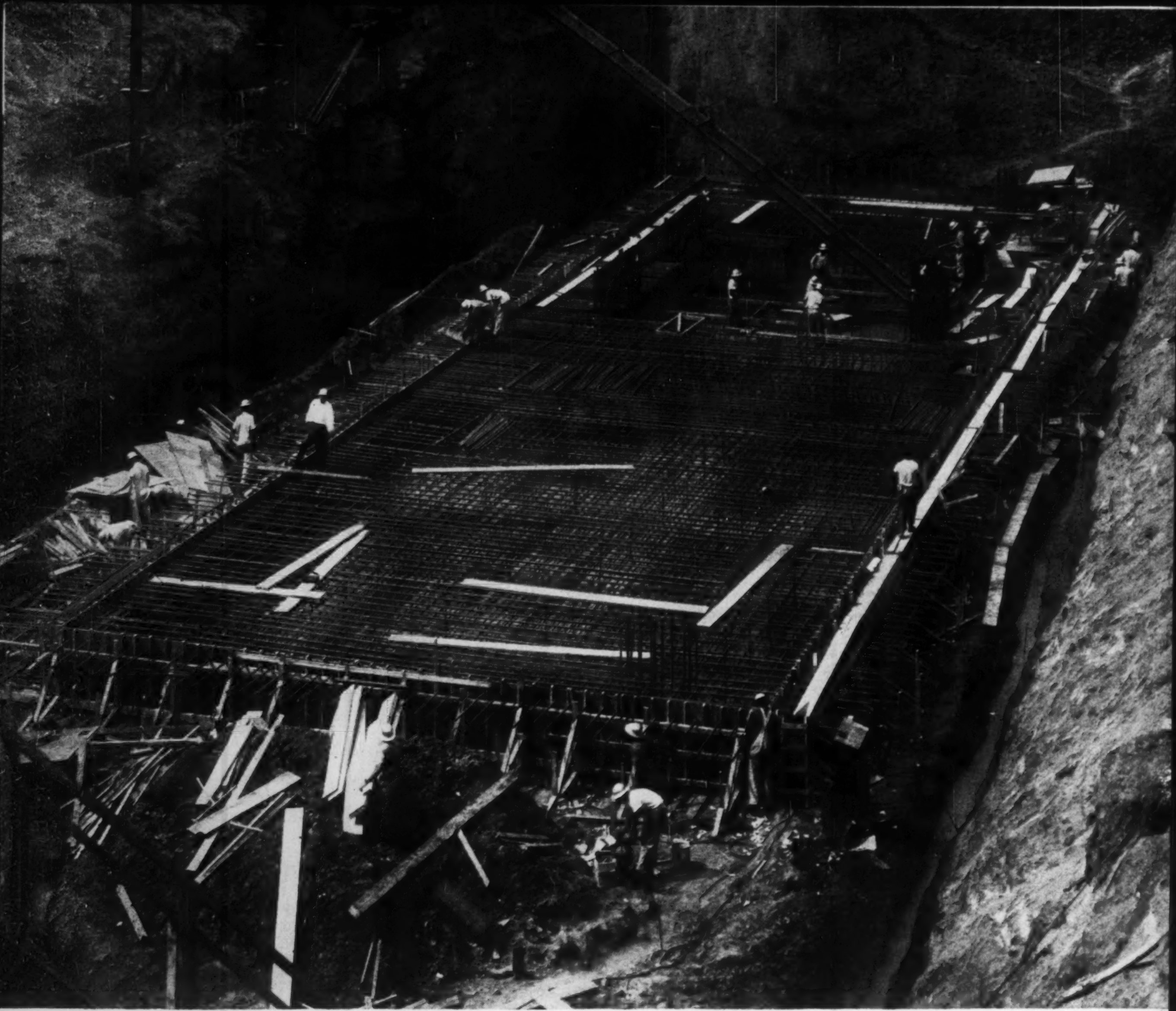


"POWER VANE" 365 ROTARY COMPRESSOR supplies air to CP Concrete Vibrators in a concrete pour. CP-600 Compressor in the background supplies air for concrete placer.

CP CONCRETE VIBRATORS knock down concrete fast . . . keep stiff batches moving . . . place flaw-free concrete in record time.

Chicago Pneumatic

AIR COMPRESSORS • PNEUMATIC AND ELECTRIC TOOLS • AIR-BLAST BITS • DIAMOND DRILLS • REICHdrills • ROCK DRILLS



One of the largest footings placed at one time in Los Angeles contains bars of Bethlehem new-billet steel

Bethlehem steel reinforcing bars were used in this footing for the United California Bank Building on Wilshire Boulevard in Beverly Hills. The footing pour shown measures 146 ft., 10 in. long, by 43 ft., 4 in. wide, by 4 ft., 3 in. thick, which is only 10 per cent fo the total area. The 1,200 tons of Bethlehem new-billet steel reinforcing bars used in the entire footing were fabricated by Bethlehem. Owner-builder is S. Jon Kreedman & Co.

All Bethlehem bars have a pedigree

Certified mill test reports, furnished by Bethlehem, are matched with heat numbers by which bundles of bars are identified. When you buy Bethlehem bars you are assured of composition, mechanical, and physical properties fully meeting all requirements of ASTM Billet-Steel Bar Specifications—a certified pedigree.

BETHLEHEM STEEL COMPANY, BETHLEHEM, PA. *Export Sales:* Bethlehem Steel Export Corporation

BETHLEHEM STEEL

BETHLEHEM STEEL

Steel

for Strength
. . . Economy
. . . Versatility

Bethlehem bar fabricating shops at your service—coast to coast

Boston
Philadelphia
Elizabeth, N.J.
Baltimore
Detroit
Clearing, Ill.
Minneapolis
San Francisco
Los Angeles
and at our steel plants located at Johnstown, Pa., Steelton, Pa., Lackawanna, N.Y., Sparrows Point, Md., and Seattle, Wash.

Obituaries

Howard S. Ponzer, 54, vice president in charge of engineering and development of the Giant Portland Cement Co., Philadelphia. After graduating from the University of Illinois, he was associated with the Portland Cement Association, the Missouri Portland Cement Co., and the General Portland Cement Co. before joining Giant.

James B. Jacob, 65, Louisville, Ky., consulting engineer. A graduate of Lehigh University, he had resided in Evanston, Ill. for many years.

David C. Boswell, 67, retired head of the Boswell Engineering Co. of Ridgefield Park, N.J., which he founded in 1924. He was an adviser to the Army Corps of Engineers, the Navy Bureau of Yards and Docks and the New Jersey Governor's Committee on Conservation and Development. During his career as a civil engineer, he acted as consultant on construction of major highway systems throughout the northeastern states. Mr. Boswell was a past director of the New Jersey Society of Professional Engineers and one-time vice president of the American Association of Engineers.

Kenneth W. Robie, 58, president of the New England Water Works Association and superintendent of the highway and water department of Brookline, Mass. He was a graduate of MIT.

Raymond Wagner, 55, associated with the New York engineering firm of Roberts & Schaefer for 18 years. As chief of the company's industrial division in Chicago, he was responsible for design of ballistic missile facilities. Prior to 1942, and for the last year, he worked for the Illinois State Highway Department.

Howell D. Humphries, 61, vice president and general manager of the Dunn Construction Co. of Birmingham. A graduate of Georgia Institute of Technology, he was formerly president of Concrete Builders, Inc. of Atlanta and was president of the Associated General Contractors of Georgia.

James C. Greeley, 76, pioneer dredgeman of the Pacific Northwest. He was dredging superintendent of Puget Sound Dredging Co. from 1920 to 1939, managed General Construction Co.'s dredging division until 1946 and then returned to the Puget Co. where he served as consultant since his retirement five years ago.

(Please turn the page)

it's
WISCONSIN-powered
to avoid costly
down-time

How dependable are Wisconsin Engines? The dust-caked 37-hp VG4D shown powering the concrete saw provides the answer.

Note that the crust of abrasive cuttings on the engine is undisturbed. This suggests miles of concrete runways sawed without down-time or costly repairs.

Also, the Wisconsin is precision-built to minimize wear and upkeep in severe applications. Stellite-faced exhaust valves and seats and positive rotators spare you the delays and expense *of up to four ordinary valve jobs!* With Wisconsins, main bearing failure is almost unheard of.

Provide for your profit by powering your equipment with Wisconsin Engines—*now 3 to 60 hp.* Get Bulletin S-283. Write Dept. C-11.

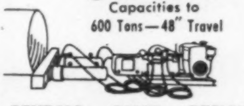
MOST H.P HOURS

WISCONSIN MOTOR CORPORATION
MILWAUKEE 46, WISCONSIN
World's Largest Builders of Heavy-Duty Air-Cooled Engines

ELGOOD
Hydraulic & Mechanical
JACKS
Capacities to
600 Tons—48" Travel

Jacking
Equipment
for

Pipe Pushing
Erection
Pile Driving
Pile Testing
Slip Forms
Tunnel Shields
Prestressed
Concrete
many other applications

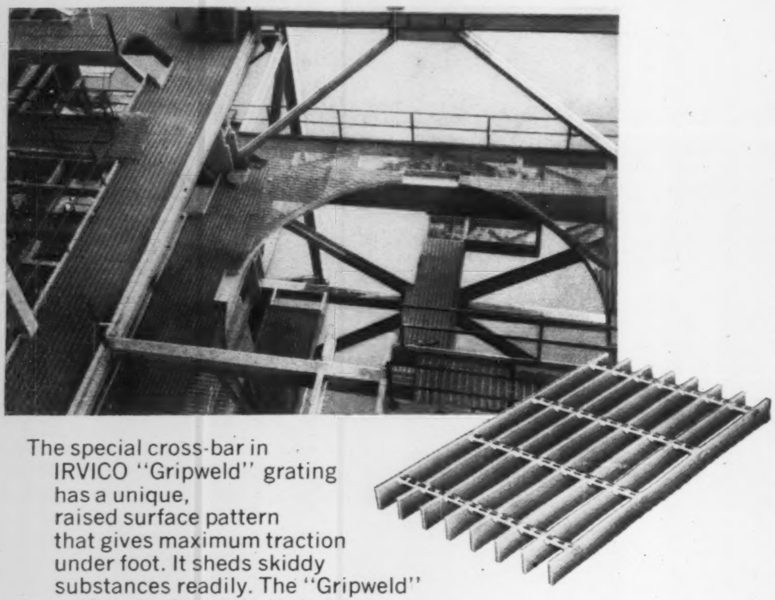


RENTALS — SALES — DESIGN
Large Stock
Immediate Delivery
Write for Job Fact Sheets
ELGOOD EQUIPMENT CORP.
242 Randolph St., Brooklyn 37, N. Y.
HY 7-5445

PHOENIX BRIDGE COMPANY
Engineers—Fabricators
Erectors
Structural Steel
BRIDGES and BUILDINGS
General Office and Shops
PHOENIXVILLE, PA.
Subsidiary—Phoenix Steel Corporation

UNIQUE CROSS-BAR in WELDED GRATING

means
- Extra Safety Under Foot
- Strongest, Most Durable Weld
- Quality at a Low Cost



The special cross-bar in IRVICO "Gripweld" grating has a unique, raised surface pattern that gives maximum traction under foot. It sheds skiddy substances readily. The "Gripweld" surface is all metal—it contains no sandy or gritty material that may become dangerously packed with oil or grease.

The cross-bar, especially designed, provides the strongest possible weld to the deep load-bearing bars. Modern fabrication, by simultaneous application of hydraulic pressure and electric current, makes "Gripweld" a rigid, one-piece grating that is remarkably strong and durable, yet low in cost.

When you need grating, especially suited for use wherever surefooted safety is required, choose IRVICO "Gripweld."

★

When you buy IRVICO GRATING you get these free services:
- DIMENSIONAL DRAWINGS FOR YOUR APPROVAL
- ERECTION DRAWINGS FOR EASY INSTALLATION
- PRESHIPMENT INSPECTION

. . . PLUS half a century of experience.

★

Manufacturers of all types of grating and treads in various metals

Write for Catalog

IRVICO

IRVING SUBWAY GRATING CO., Inc.

ORIGINATORS OF THE GRATING INDUSTRY
Offices and Plants at
5063 27th ST., LONG ISLAND CITY 1, N. Y.
1863 10th ST., OAKLAND 20, CALIFORNIA

Clifford A. Schoen, 65, president of Schoen Paving, Inc., C. A. Schoen, Inc. and Great Lakes Structural Concrete Products Co., all Toledo paving contracting firms.

Alfred C. Lam, 71, president of the Lam Building Corp. of Philadelphia. A graduate of Drexel Institute of Technology, he constructed numerous schools, industrial buildings, government projects in the Philadelphia area.

Colin C. Simpson, 72, vice president of the William Simpson Construction Co. of Los Angeles.

Marion G. Keyser, 66 deputy engineer for Summit County, Ohio. He was with the county engineer's department for 23 years.

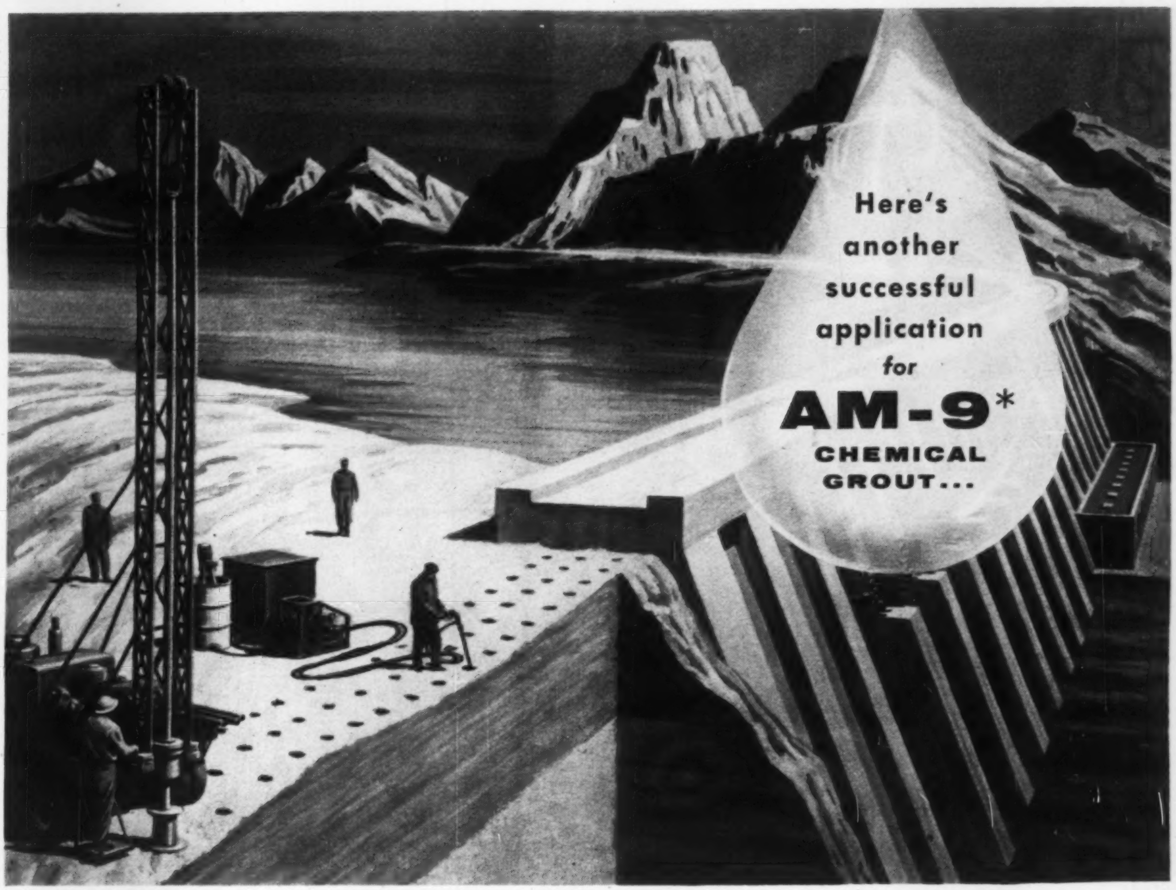
Robert H. R. Gould, 76, formerly associated with the New York construction firm of George A. Fuller and with Schultz and Weaver, architects. A graduate of Dartmouth College, he helped supervise construction of the Waldorf-Astoria Hotel in New York as well as various other large hotels throughout the country and in Cuba.

Walter H. Sutliff, 83, retired vice president and one of the founders of Bolton-Pratt Co., Cleveland general contracting firm. An MIT graduate, he figured in the early design and use of reinforced concrete in construction and built many structures in downtown Cleveland.

Valentine S. Doebler, 96, a civil engineer formerly with the Pennsylvania Railroad in Philadelphia and the Cambria Steel Co. of Johnstown, Pa.

Harry R. Wade, 77, one of the founders of the engineering and construction firm of Dawson, Wade & Co. of Vancouver, B.C. He had worked on the Canadian National Railway and the Pacific Great Eastern Railway and supervised construction of many major airports in the Western Provinces before forming his own firm.

Robert L. Weed, 64, president of Weed-Johnson Associates, Miami architects. He conceived the master plan for the University of Miami and designed numerous buildings in this country and abroad, including the U.S. consulates in Leopoldville and Lagos. Mr. Weed was a graduate of Carnegie Institute of Technology and was a past president of the Florida Association of Architects. He had received two national AIA awards and a silver medal of the Seventh Pan-American Congress of Architects.



constructing an underground cut-off wall to control seepage around a dam!

An excellent example of the AM-9 application depicted in the artist's impression above is the Rocky Reach Hydroelectric Dam, where an 1,800 foot long 125 foot deep wall was constructed using three types of grout. Cyanamid's AM-9 was selected for the final sealing because its water-thin viscosity enables it to penetrate sand zones of low permeability.

Three rows of grout holes were drilled and cased through the natural clay blanket to the clay-gravel interface. Porous gravel strata were grouted to bed rock with cement-clay and cement-bentonite. Each hole was advanced in 5-foot stages with AM-9 placed in each stage. Permeability of each stage's formation controlled the set time selected and the quantity of AM-9 used. Evidence to date shows that AM-9 has reduced permeability to the value specified by Stone & Webster Engineering Corporation, who designed and supervised construction of this project for Chelan County Public Utility District No. 1, Wenatchee, Wash.

Versatile AM-9 gives engineers a better, faster, easier method of controlling water and stabilizing ground in tunnels, mine shafts, coffer dams, sewer-pipe joints, caissons, open excavations, oil wells, drill holes and basements. Injected as an aqueous, non-viscous solution with a catalyst, AM-9 solidifies into a stiff, permanent, impermeable gel. Since solution remains essentially that of water until gelation, it will penetrate virtually any formation through which water will flow. Setting time is closely controllable by varying catalyst dosage; no natural ground formation has been discovered in which grout cannot be made to set.

You should know about AM-9 so you can consider it next time you're faced with water seepage. Contact our nearest office for complete information.

CYANAMID

AMERICAN CYANAMID COMPANY
EXPLOSIVES AND MINING CHEMICALS DEPARTMENT
BOUND BROOK, NEW JERSEY

IF IT'S CYANAMID IT'S DEPENDABLE!

*Trademark

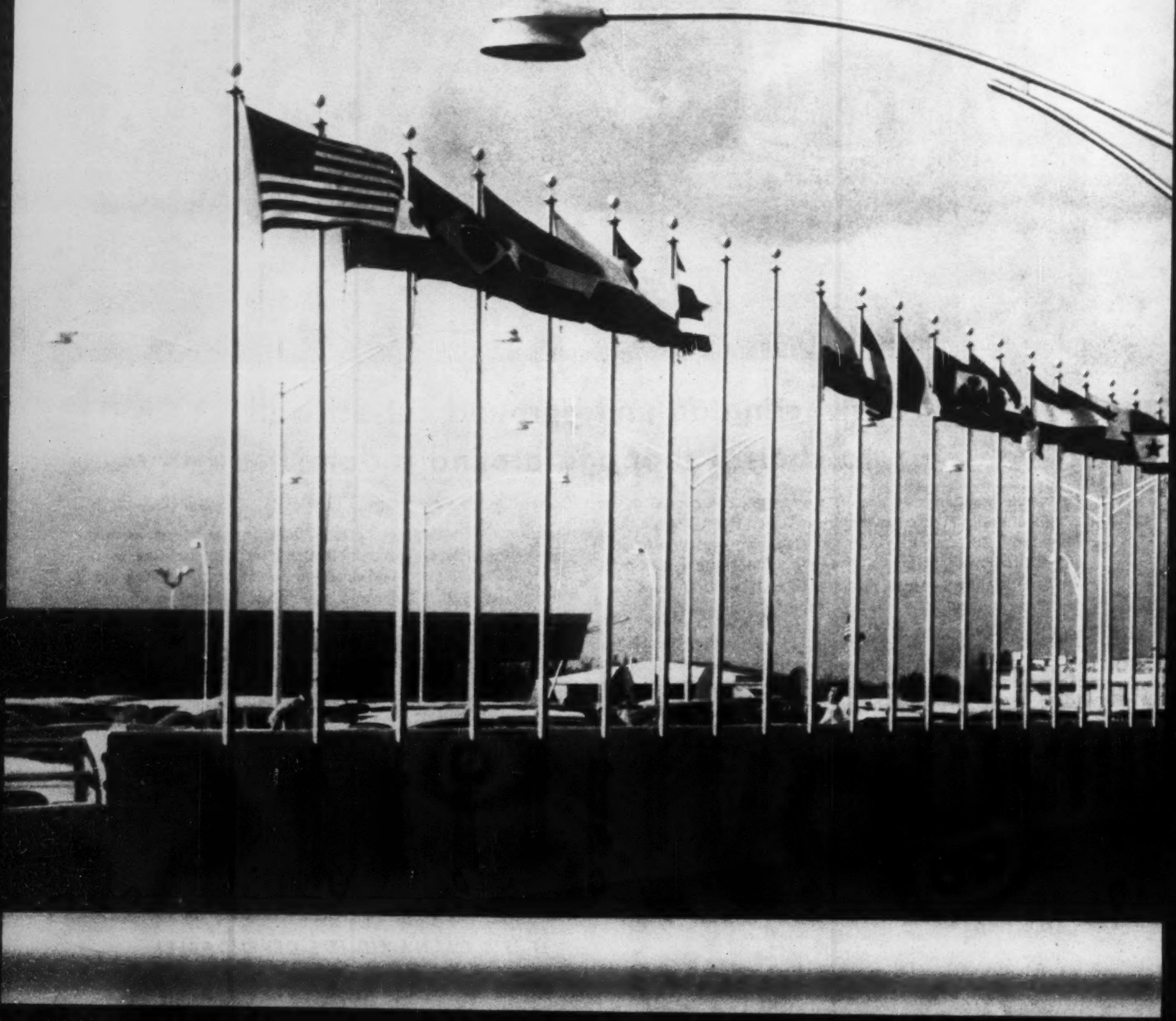
At Miami International Airport…Alcoa Aluminum

G. L. Smith and C. H. Peterson, resident engineers for the firm of Howard, Needles, Tammen & Bergendoff—consultants to the Dade County Port Authority.

"Hurricane Donna, in 1960, was a critical wind test for our 541 aluminum lighting standards and 24 aluminum flagpoles. I am happy to report only superficial damage." —Smith

"Everything at the Miami Airport is new and beautiful and sparkling. We know it is going to stay that way because it's aluminum."—Peterson

"Aluminum belongs on the open road if for no other reason than the fact that it won't rust."—Smith



belongs "if for no other reason than it won't rust"

"People have said that there isn't enough strength in aluminum for highway products. Baloney! There is as much strength in aluminum highway products as Alcoa wants to alloy into them."—PETERSON

"Aluminum gives the designer and the engineer a freedom not experienced with other materials. Because aluminum won't rust, you can forget about maintenance and you can forget about designing structures so that they can readily be repainted."—PETERSON

For more information about lighting standards of Alcoa® Aluminum and other Alcoa Highway Products, write: Aluminum Company of America, 895-K Alcoa Building, Pittsburgh 19, Pa.

Entertainment at Its Best . . . **ALCOA PREMIERE**
with Fred Astaire as Host . . . Tuesday Evenings, **ABC-TV**

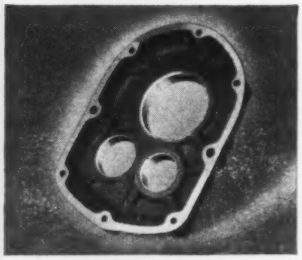
ALCOA ALUMINUM
HIGHWAY PRODUCTS

. . . the quality-engineered package

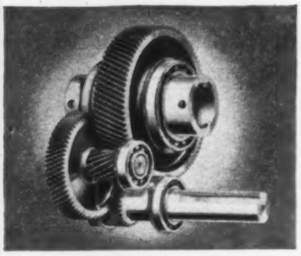
that simplifies speed reduction

DODGE TORQUE-ARM, America's most widely used shaft mounted speed reducer, will save money for *you.* No foundation, no sliding motor base, no flexible coupling, no installation fuss. Developed and perfected by Dodge, this reducer has been so widely accepted in industry that it is now built and stocked in this unmatched range of sizes and models: capacities up to 170 hp; output speeds from 10 to 400 rpm; ratios of 5:1, 15:1, 25:1; speed ratios up to 175 to 1 with correct selection of speed reducer and V-belt drive. Built-in backstop available. Also positive overload release. Vertical models. Flange mounted models. Special application models . . . Go modern—go Torque-Arm! See your Dodge Distributor, or write us.

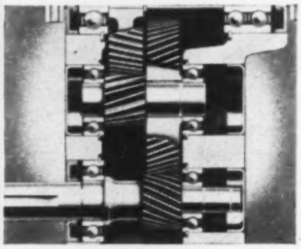
Dodge Manufacturing Corporation, 6900 Union St., Mishawaka, Ind.



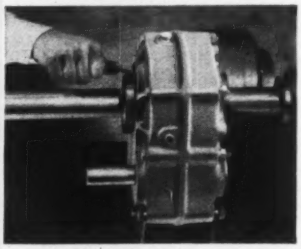
Rugged, semisteel housing holds bearing seats in line for entire life of unit. Laughs at loads. Corrosion resistant.



AGMA rated helical gears. Soft cores withstand shock; hardened surfaces defy wear. Teeth are crown shaved.



Gears are located *between* bearings and carry their loads without strain. Longer life, higher efficiency.



Unit slides completely onto shaft and locks on *both* sides of housing. This baby stays *put*—runs truer longer.

The Products with the Pluses . . . **DODGE**

of Mishawaka, Ind.

CALL THE TRANSMISSIONEER, your local Dodge Distributor. Look under "Dodge Transmissioneer" in the *white* pages of your phone book. Factory trained by Dodge, he can give you valuable assistance.

Unit Prices

Low steel piles prices help land . . .

Sioux City Bridges Award

Western Construction Corp., Sioux City, Iowa, took this bridge contract for the town of Sioux City by bidding low at $4.30 a ft for 4,250 lin ft of 10 in. steel piles and $4.60 a ft for 7,380 lin ft of 12 in. piles. Steel piles prices ran from Western's low to a high of $6.50 a ft for 10 in. and $8.00 a ft for 12 in. piles. Piles account for 18% of the contract.

Western's low bid of $397,469 was 4.6% under Condon-Cunningham, Inc., Omaha, and 19% under the high of nine bidders. Henningson, Durham & Richardson Inc., Omaha, Neb., are the engineers.

Two welded steel girder bridges are included in the job. The Sixth St. bridge will measure 296 ft c-c of abutments and have a 52-ft roadway, and the Dace Ave. bridge will stretch 345 ft c-c of abutments and carry a 48-ft roadway. Both structures will have two 4-ft walks and aluminum rails.

Substructure concrete ranged from $47.00 to $80.00 a yard for 1,053 cu yd, and steel ran from $0.1162 to $0.15 a unit for 151,500 lb.

The bridges, part of the Floyd River Flood Control project, cross a new channel of the Floyd River. Although completion time isn't until May 1962, Dace Ave. must be opened to traffic by Dec. 15, 1961.

Both rail and highway transportation is available, and the construction site is only half a mile from the railhead.

Prevailing wage rates include: common, $2.875/hr; structural and reinforcing ironworkers, $3.725.

The bidding included:

1C	Western Contr. Corp., Sioux City, Iowa	$397,460
2	Condon-Cunningham, Inc., Omaha, Neb	416,554
9	Brogan Const. Co., Des Moines, Iowa	490,045
EE	Henningson, Durham & Richardson, Inc., Omaha, Neb.	475,935

Bids: 7-31-61 Items	Unit	Quantity	Unit Prices 1 C	 2
Piles, steel, 10"	lf	4,520	$4.30	$5.50
12"	lf	7,380	4.60	6.30
Steel, reinf, substructure	lb	151,500	0.13	0.14
Conc, substructure	cy	1,053	49.00	50.00
Superstructure,				
Dace Ave. bri	ls	job	157,000	150,000
Sixth St. bri	ls	job	108,000	113,000
conc, reinf, approach pvmt	sy	556	14.00	15.00

Completion date: 5-1-62
Liquidated damages: $100 per day

ENR Constr. Cost Index (1913 = 100) 20-cities avg.—853.64
ENR Building Cost Index (1913 = 100) 20-cities avg.—571.66

California Tunnel Award Starts Oroville Dam Work

This 4,333-ft long, 35-ft dia diversion tunnel for Oroville Dam will cost California's Department of Water Resources $6,193,685 or about $1,429 a ft. Frazier-Davis Construction Co., St. Louis, took the contract 2.8% under Perini Corp., San Francisco, and 35% under the high of ten bidders.

Frazier-Davis landed the award by bidding a low of $11.00 a yard for 210,000 cu yd of tunnel excavation. Prices range all the way from $11.00 to a high of $20.50 a yard.

The tunnel will be completely concrete lined. The lining requires 60,000 cu yd of concrete (28 day, 5,000 psi, placed at 50 F) at $26.00 a unit. Concrete prices run from $18.50 to $50.00 a yard.

Permanent supports for the tunnel include 1,961,000 lb of structural steel —priced at $0.20 a lb by all ten bidders. When the dam is completed, the tunnel will serve as a tailrace for an underground power plant.

Open cut excavation prices range from Frazier-Davis' low of $2.50 a unit for 27,000 cu yd to a high of $10.00 a yard.

Materials may be transported to the dam site by either rail or highway. The Oroville dam site is 4 mi from the nearest railhead.

Prevailing wage rates include: skilled labor, $4.125/hr; semi-skilled, $3.725; and common labor, $3.325.

The bidding included:

1C	Frazier-Davis Const. Co., St. Louis, Mo.	$6,193,685
2	Perini Corp., San Francisco, Calif	6,370,330
10	Guy F. Atkinson Co., South San Francisco, Calif	9,472,685

Bids: 8-9-61 Items	Unit	Quantity	Unit Prices 1 C	 2
Care of river during const, & removal of water from fdn	ls	job	$150,000	$25,000
Excavation, open-cut	cy	27,000	2.50	3.75
tunnel	cy	210,000	11.00	14.00
Drill holes & grout anchor bars	lf	2,340	1.50	2.00
Steel, str, perm supports*	lb	1,961,000	0.20	0.20
Rock bolts, ungrouted*	lf	144,200	1.75	1.75
grouted*	lf	16,200	2.50	3.00
Chain link fabric*	sf	210,000	0.20	0.20
Timber*	Mfbm	145	175.00	175.00
Mobilization & demobilization for tunnel grout operations	ls	job	7,000	30,000
Grout holes, drilling depths				
0'–15'	lf	19,600	1.00	4.00
15'–50'	lf	1,300	8.00	5.00
50'–200'	lf	3,900	11.00	6.00
Exploratory holes, drilling.	lf	1,500	11.00	7.50
Connections, to grout holes	ea	1,335	5.00	5.00
Grouting, tunnel rock	cf	24,600	6.00	3.00
Pipe, perf drain, 4"⌀*	lf	50	4.00	2.50
Concrete*	cy	60,000	26.00	18.50
Cement, f & handle	bbl	88,000	6.00	5.00
Pozzolan, f & handle	t	2,800	30.00	35.00
Reinf bars, f & p	lb	3,850,000	0.11	0.15
Metalwork, misc*	lb	66,500	0.75	0.65
Prestressing conc tunnel pier	ls	job	14,000	40,000

* in place

Completion time: 520 calendar days
Liquidated damages: $800 per day

ENR Constr. Cost Index (1913=100) 20-cities avg.—854.09

Proved Cost Saver

CURE and SEAL CONCRETE WITH 1 PRODUCT

THOMPSON'S WATER SEAL

Eliminates wet sacks, papers, hosing and spraying

Spray deep penetrating, colorless Thompson's Water Seal on fresh concrete to cure and seal in one operation. Save time . . . save labor.

Effectively controls moisture loss for 28 days and beyond.

Assures uniform curing even in hot, dry weather.

Helps reduce checking, cracking, spalling.

Produces harder, dust-free surface.

Eliminates waterproofing concrete floors.

Permits adequate time for smooth troweling.

Send for technical bulletin and Contractors Case History file.

A proved bond breaker for pre-cast, tilt up and lift slab construction. Permits easy, clean separation of slabs, walls, pre-cast members.

Available in 5 and 55 gallon drums from building supply stores, paint and hardware dealers.

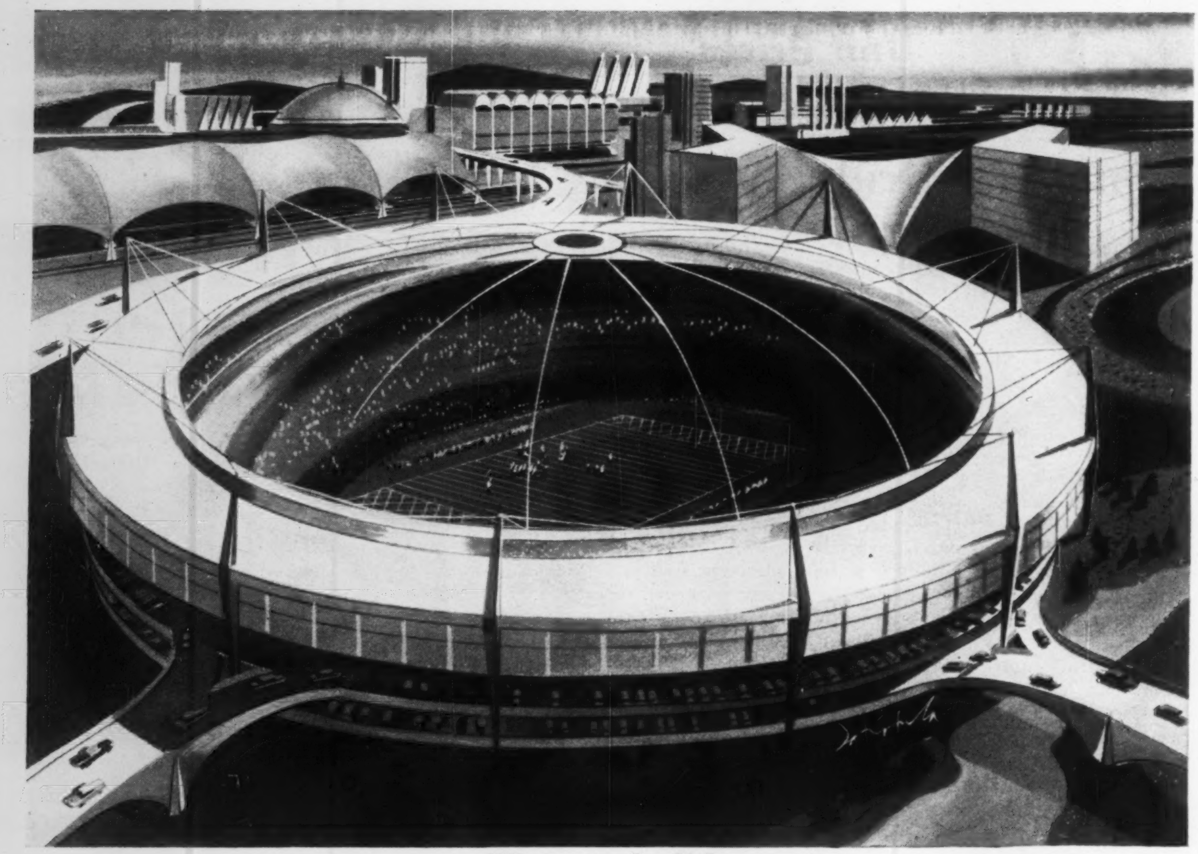
4932

Thompson's

MANUFACTURERS OF FINE PROTECTIVE CHEMICALS SINCE 1929

E. A. Thompson Co., Inc., Merchandise Mart, San Francisco 3, California

San Francisco • Los Angeles • San Diego • Portland • Chicago • Seattle • Denver • Dallas Houston • St. Louis • St. Paul • Detroit • Philadelphia • New York City • Memphis • Cleveland • Factory: King City, California

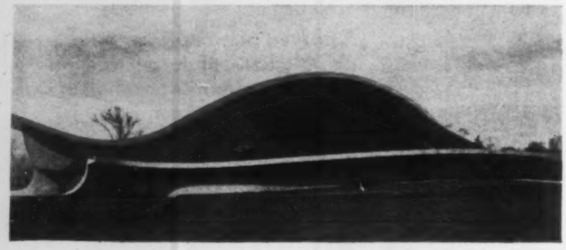


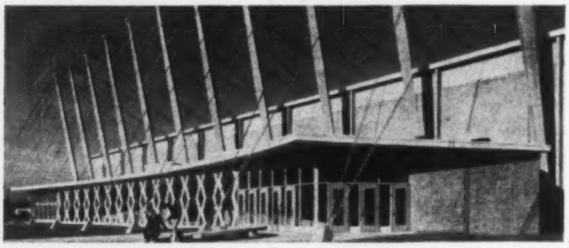
How to build
AN INDOOR SPORTS ARENA–OPEN AS ALL OUTDOORS

It hasn't been built yet. But a sports arena like the one envisioned here with its soaring lines and its spacious, obstruction-free interior *can* be built. Faster, more durably and with fewer dollars than you probably imagine.

It can be done with suspended roof construction techniques pioneered by Roebling. A rapidly increasing number of structures in which unimpeded freedom of action and unobstructed vision are essential are now enjoying the benefits of suspended roof construction. Among these are airport hangars and terminals, auditoriums, gymnasiums, plants, warehouses, many of which are designed by America's leading architects and engineers.

What kind of information do you need on suspended roofs? General or specific, Roebling can give it to you. Our experience in this field starts from the beginning, covers every type. We are happy to share our special knowledge with you. Please write or call Roebling's Bridge Division, Trenton 2, New Jersey.





SUSPENSION ROOFS NOW AT WORK...

YALE UNIVERSITY'S–DAVID S. INGALLS ICE HOCKEY RINK, NEW HAVEN, CONNECTICUT • Architect: Eero Saarinen and Associates, Bloomfield Hills, Michigan • Consulting Engineers: Severud-Elstad-Krueger, New York City • Contractor: George B. H. Macomber, Boston, Mass and New Haven Conn. • Cables by Roebling

NEW HEALTH AND PHYSICAL EDUCATION BUILDING, CENTRAL WASHINGTON COLLEGE OF EDUCATION AT ELLENSBURG, WASHINGTON • Architect: Ralph Burkhard, A.I.A., Seattle • Structural Engineers: Anderson, Birkeland, Anderson, Tacoma • Prestressed Concrete Fabricator: Concrete Technology Corp., Tacoma • Cables by Roebling

ROEBLING

Branch Offices in Principal Cities • John A. Roebling's Sons Division • The Colorado Fuel and Iron Corporation

Materials Prices

Monthly Market Quotations by ENR Field Reporters

LUMBER, TIMBER, PLYWOOD— + or — denote this price is higher or lower than last month's price

See following ENR issues for OTHER PRICES:

- Clay Products, Lime, Plaster, Paint, Roofing: Last, Sep. 28; Next, Oct. 26.
- Wage Rates, Building Board, Lath, Insulation: Last, Sep. 28; Next, Nov. 11.
- Cement aggregate, Ready-Mixed Concrete, Asphalt: Last, Oct. 5; Next, Nov. 9.
- Iron & Steel Products Pipe: Last, Oct. 12; Next, Nov. 16

Item		Unit	Atlanta	Baltimore	Birmingham	Boston	Chicago	Cincinnati	Cleveland	Dallas	Denver	Detroit	Kansas City	Los Angeles	Minneapolis	New Orleans	New York	Philadelphia	Pittsburgh	St. Louis	San Francisco	Seattle	Montreal	Toronto
LUMBER, TIMBER																								
1x6s4s	Pine	Mbf.	81.00	−85.00	+80.00	......	−103.00	91.00	93.00	+105.50	......	108.00	110.00	......	102.00	−81.00	−89.00b	......	82.00	−86.00	......	......	79.00c	−87.00c
	Fir		100.25	−90.00	+102.00	......	−100.00	92.00	......	......	......	96.00	110.00	−77.00	......	−93.75	−93.00	......	96.00	+93.00	−73.00	60.00	......	......
1x8s4s	Pine	"	84.00	−85.00	+83.00	......	−106.00	93.00	97.00	+105.50	......	110.00	110.00	......	104.00	−83.00	−89.00	......	82.00	−88.00	......	......	81.00c	−91.00c
	Fir		91.00	−90.00	+97.50	−101.00	−102.00	94.00	......	......	......	98.00	110.00	−69.00	......	−93.75	−93.00	......	82.00	+93.00	−73.00	65.00	......	......
2x4s4s	Pine	"	81.00	−85.00	+87.00	−98.00	−105.00	98.00	107.00	107.50	......	104.00	105.00	......	92.50	−93.00	+97.00b	−93.00b	82.00	−90.00	......	......	79.00c	−87.00c
	Fir		106.50	−105.00	−104.00	−108.00	−109.00	−106.00	113.00	99.25	99.50	107.00	110.00	+83.00	......	−103.75	+101.00	−98.00	112.00	−95.00	−81.00	73.00	......	−106.00
2x6s4s	Pine	"	82.00	−87.00	+85.00	−98.00	−105.00	98.00	99.00	107.50	......	104.00	110.00	......	92.50	−88.00	+97.00b	−92.00b	84.00	−89.00	......	......	79.00c	84.00c
	Fir		104.50	−105.00	−104.00	−108.00	−109.00	−106.00	107.00	99.25	98.50	101.00	115.00	+83.00	......	−103.75	+101.00	−98.00	112.00	−94.00	−81.00	73.00	......	−106.00
2x8s4s	Pine	"	84.00	−88.00	+87.00	−98.00	−112.00	98.00	104.00	123.50	......	114.00	110.00	......	96.50	−88.00	+97.75b	−95.00b	89.00	−92.00	......	......	95.00c	−90.00c
	Fir		107.25	−110.00	−108.00	−108.00	−112.00	−107.00	109.00	......	97.50	110.50	115.00	+84.00	......	−104.50	+101.75	−100.75	112.00	−96.00	−81.00	73.00	......	−108.00
2x10s4s	Pine	"	89.00	−90.00	+93.00	−113.00	−114.00	105.00	110.00	123.50	......	118.00	120.00	......	97.75	−103.00	+100.00b	−98.00b	91.00	102.00	......	......	125.00c	−90.00c
	Fir		109.25	−110.00	−110.00	−118.00	−117.00	−112.00	111.00	......	100.50	118.00	120.00	+84.00	......	−109.25	+104.00	−103.50	114.00	−99.00	−87.00	75.00	......	−111.00
3x12Rgh	Pine	"	104.00	−112.50d	+105.00	......	−124.00	112.50	......	137.50	......	......	......	......	120.50	−118.00	+118.00b	......	116.00	110.00	......	......	......	105.00c
	Fir		123.25	−126.00d	+133.50	138.00	−124.00	130.00	+136.00	......	116.50	181.00d	140.00d	+91.50	......	−134.75	+122.00	−122.75	130.00	125.00	+107.00	87.50	......	123.00
6x12Rgh	Pine	"	114.00	−127.50d	+105.00	148.00	−134.00	135.00	......	171.00	......	......	......	......	111.50	......	+118.00b	......	116.00	+120.00	......	......	......	......
	Fir		123.25	+136.00d	+133.50	158.00	−127.00	130.00	+136.00	......	114.50	181.00d	+185.00d	+91.50	......	−121.75	+122.00	−119.75	130.00	125.00	−107.00	91.00	......	127.00
12x12Rgh	Pine	"	129.00	−128.50d	+120.00	......	−134.00	135.00	......	178.00	......	......	......	......	112.50	+128.00	+118.00b	......	116.00	+120.00	......	......	120.00c	......
	Fir		120.25	+136.00d	+135.00	......	−127.00	+135.00	+136.00	......	107.50	181.00d	+185.00d	+91.50	......	−118.75	−122.00	−116.75	123.00	125.00	−108.00	91.00	......	125.00
FIR PLYWOOD (a)																								
⅝" Int. Plyscored, CD gr.		Msf.	125.00	−125.00	126.71	116.90	135.00	−116.45	−118.00	125.00	110.25	−116.45	+135.00	−91.80	−115.00	122.25	−115.20	−109.20	122.50	−113.37	−93.95	94.00	119.25	145.00
¾" Exterior Plyform, BB gr.		"	+225.00	−215.00	209.71	−211.40	225.00	−204.70	−210.50	212.50	210.00	−204.70	215.00	−146.60	208.05	201.95	−204.60	−197.30	212.60	205.93	−178.00	180.00	225.95	230.00

Fir-Random length, 75% construction grade, 25% standard grade, 30,000 bf, green stock, grademarked. Pine-Random length, #2 common and better. Southern Pine Inspection Bureau grademarked, 30,000 bf. Lumber prices include freight from mill to city and cost of unloading and trucking full carlot to jobsite. •a Certificated stock, carlots, fob city. •b Hemlock, 75% construction grade, 25% standard grade. •c Spruce. Fir plywood prices, per Msf. fob Northwest mill: CD grade interior sheathing—½" $76-78, ⅝" $84-88; BB grade Plyform—⅝" $148-150, ¾" $168-170. •d Nominal. •e Exterior.

WINDOW GLASS, Discounts from Jobber's list, Feb. 1, 1950 (a) sales tax extra—single or double strength

	Atlanta	Baltimore	Birmingham	Boston	Chicago	Cincinnati	Cleveland	Dallas	Denver	Detroit	Kansas City	Los Angeles	Minneapolis	New Orleans	New York	Philadelphia	Pittsburgh	St. Louis	San Francisco	Seattle	Montreal	Toronto
A quality	78%	74%b	82%c	70+10%eg	70%	72%	72-2-10%	70%	73%-10	72-10-10%	76-10-10%	$12.88/17.32	70-10%	76%d	79%	80%	76%	74-10-10%ef	60%	$8.85/11.55di	40-10-5%a	$6.49/9.50
B quality	80%d	74%b	83%c	70+10%eg	70%	72%	72-2-10%	70%	73%-10	72-10-10%	76-10-10%	$10.45/14.13	70.10%	76%d	79%	80%	76%	74-10-10%e	73%	6.41/8.07di	40-10-5%a	5.90/8.77

Glass: •a Jobber's list price per box, 14 x 20, ss. $42.75 for A quality, $37.50 for B quality; 14 x 20, ds. $60.00 for A quality, $52.75 for B quality. •b sales tax extra. •c 77% for single strength. •d From 6/15/52 list. •e 77% for double strength. •f Single strength; double strength, 83%. •g From 8/1/58 list. •h ss/ds, 40-in. •i 20 boxes min. •l eff. 10/15/58. •m less 2% disc, 10 days. •n less 1% disc, 10 days. •o add 2% sales tax. •p less 1% for cash. •q less 2% for cash.

EXPLOSIVES per lb, 40% Ammonia Gelatin in 50 lb cases delivered in 500 lb lots (non-seismograph grades)

Urban Areas	Atlanta	Baltimore	Birmingham	Boston	Chicago	Cincinnati	Cleveland	Dallas	Denver	Detroit	Kansas City	Los Angeles	Minneapolis	New Orleans	New York	Philadelphia	Pittsburgh	St. Louis	San Francisco	Seattle	Montreal	Toronto
	$0.2595	$0.2795	$0.2595	$0.2795	$0.2795	$0.2595	$0.2595	$0.2870	$0.2795	$0.2795	$0.2795	$0.2795	$0.2795	$0.2795	$0.5130g	$0.2795	$0.2595	$0.2795	$0.2795	$0.2795	$23.20h	....

Explosives: Cartridges of 1¼" diameter or over, in standard lengths. •g deliveries in certain areas must be by truck or by truck and boat, requiring extra charge. •h fob Beloeil (near Montreal), per 100 lb., lots under 2000#, wood cases, forcite, 40%. Forcite 60% $24.30 in fiber cases; forcite 40%, $24.05; forcite 60%, $25.80. Price of 60% Ammonia Gelatin is $0.15 per lb. higher than 40% in U. S., $1.75 per 100 lbs. higher in Canada.

Non-Urban Areas	C/L 30,000 lb. lots	10,000 lb. lots	2,000 lb. lots	200 lb. lots
Group 1*	$0.21.95	$0.22.95	$0.26.45	$0.27.95
Group 2†	.22.70	.23.70	.27.20	.28.70

*All areas except those in Group 2 and N.J. cities of Bayonne, Hoboken, Jersey City, No. Bergen, Union City and Weehawken † Florida counties of Manatee, Hardee, Highlands, Okeechobee, St. Lucie and south thereof; Idaho; Maine; Montana; New Mexico counties of Catron, Socorro, Lincoln, De Baca, Roosevelt and south thereof; Texas counties of Bailey, Lamb, Hale, Floyd, Motley, Cottle, Hardeman, Foard, Knox, Haskell, Jones, Taylor, Coleman ,McCulloch, San Saba, Burnet, Williamson, Milan Robertson, Leon, Houston, Angelina, Nacogdoches, Shelby and south thereof.

PILES prices per linear foot, fob cars, New York

Dimensions	Points	Length	By Rail Pine*§	By Rail Fir	Dimensions	Points	Length	By Rail Pine*§	By Rail Fir
12" at butt	6-in.	30 to 39-ft.	$0.42a	....	14"—2-ft. from butt	6-in.	65 to 69-ft.	1.21	....
12"—2-ft. from butt	6-in.	40 to 44-ft.	.91	....	14"—2-ft. from butt	6-in.	70 to 74-ft.	1.34	$1.40
12"—2-ft. from butt	6-in.	45 to 49-ft.	.97	....	14"—2-ft. from butt	6-in.	75 to 79-ft.	1.41	1.40
12"—2-ft. from butt	6-in.	50 to 54-ft.	1.01	....	14"—2-ft. from butt	5-in.	80 to 84-ft.	1.54	1.45
12"—2-ft. from butt	6-in.	55 to 59-ft.	1.07	....	14"—2-ft. from butt	5-in.	85 to 89-ft.	1.67	1.54

* Pine piling over 90 feet available only in limited quantities. § ASTM Class B •a, trucked in from N. J.
Prices per linear foot, fir and pine, rough peeled, f.o.b. cars, New York. Fir based on Wash. and Ore. points to New York shipping area; pine under fifty feet based on freight from mid/South, over fifty feet ,on freight from deep south.

RAILWAY TIES

Prices f.o.b. per tie box carload lots:		6" x 8" x 8' Untr.	6" x 8" x 8' Tr.	7" x 8" x 8'6" Untr.	7" x 8" x 8'6" Tr.
Birmingham*	Hardwood, Grade 3	$1.70	$2.55	Gr. 5 $2.25	$3.33
	Grade 2	1.50	2.35	" 4 2.10	3.18
	Grade 1	1.15	2.00	" 3a 1.70	2.78
Chicago	Red Oak	2.85-3.00	4.00a-4.10	3.90	4.75
New York	Mixed Hardwood	3.45	5.10	4.30	6.50
	Mixed Oak	3.55	5.20	4.40	6.60
Philadelphia	Mixed Oak	3.80	3.97	4.37	4.65-4.75
St. Louis	Mixed Oak	2.65h	3.75h	3.05h	4.10h
San Francisco	Douglas Fir	2.05e	3.30e	2.35ef	3.35ca

Tr.—Treated; Untr.—Untreated. •a Creosoted. •c Empty cell. •e Green •f f.o.b. cars. •g 7 x 9 x 8'6" * Add 75¢/tie freight charge to Birmingham. •h 7" x 9" x 8½. •i Mixed Hardwood

CHEMICALS Water, sewage treatment, road work, carlots, f.o.b. works

Chlorine cylinders, liquid, per lb. freight allowed, N. Y. State	$ .11
Calcium chloride, 77-80%, flaked, 100-lb. paper bag, ton	32.00
Silicate of soda, 52 deg., in drums, per 100 lb.	2.65
Soda ash, 58%, in paper bags, per 100 lb. dense	1.90
Sulphate of aluminum, commercial, in 100-lb. bags	2.05
Sulphate of copper in bags, 99% per 100 lb., reg., 25.2% copper content	12.50

Construction Reports

Bids Asked—Low Bidders—Contracts Awarded—

NEW ENGLAND

HEAVY CONSTRUCTION—BA

▲† **Rhode Island**—BA 10/31—U. S. Eng., 424 Trapelo Rd., Waltham, Mass., REHAB. BREAKWATER, ENG-19-016-62-18, Point Judith, $1,500,000. Plans deposit $2. CD 9/15/61.

BUILDINGS—BA

▲ Mass., **Framingham**—BA 11/1—Town, Supt. Schools, Union Ave., JUNIOR-SENIOR HIGH SCHOOL, Winch Park, Saxonville Section. $5,000,000. M. A. Dyer Co., 24 School St., Boston, Mass., archt.

HEAVY CONSTRUCTION—LB & CA

▲ **Traylor Bros., Inc.**, Station "B", Box 6066, Evansville, Ind., LB **$2,971,300**, est. $2,980,000, (12 bidders), Proj. C-214, Boston MAIN DRAINAGE RELIEF SEWAGE, Metropolitan Sewerage Dist., Roxbury, MASSACHUSETTS. Commonwealth Mass., Metropolitan Dist. Comn., Constr. Div., 20 Somerset St., Boston, Mass. BA 10/5. CD 9/20/61.

▲ **CONNECTICUT**—State Hy. Comr., 170 Douglas St., Hartford, ROAD,
Rejected bids Sept. 18, 1,238 lin. ft. grading, paving, conc. section Interstate Rte. 84, widening, paving Bulkeley Bridge and constr. 2-span girder bridge, Proj. 63-53, East Hartford and Hartford, LB **$3,484,414**. CD 9/20/61, under LB.

BUILDINGS—LB & CA

▲ **Ansonia Housing Auth.**, 15 Maple St., Ansonia, Conn., rejected bids Aug. 29, 3 story, 165 unit eleven garden type APARTMENT BLDGS., Broad St., Redevelopment Area, Federal Housing Proj., ANSONIA, CONN., LB **$2,760,000**. CD 9/12/61, under LB.

▲ **E & F Constr. Co.**, 94 Wells St., Bridgeport, Conn., LB **$2,426,400**, (8 bidders), convert Mill Plain Elementary School into HIGH SCHOOL ADDN., FAIRFIELD, CONN., Town, Purch. Auth., Town Hall, Fairfield, Conn. BA 10/6/61. CD 9/6/61.

MIDDLE ATLANTIC

HEAVY CONSTRUCTION—BA

▲† Pa., **Johnsville**—BA 11/2—Dpt. of Navy, Phila. Naval Base, NAVAL AIR DEVELOPMENT CENTER, INERTIAL GUIDANCE FACILITY, NBy-37114, $2,000,000. Plans deposit $85. Von Storch & Burkavage, Waverly, Pa., and Kearfoot Co., Clifton, N. J., archts. CD 10/2/61.

▲† **New York**—BA 11/16—U. S. Eng., foot of Bridge St., Buffalo, Zone 7, DEEPENING and MODIFICATION Rochester Harbor, Rochester. $2,000,000. CD 10/3/61.

BUILDINGS—BA

▲ N. Y., **New York**—BA 10/24—New York City Housing Auth., Rm. 1002, Purchase Div., 10th Floor, 299 Broadway, New York Zone 7, (1) fdns. and general constr., (2) heating and ventilating, (3) electrical work and (4) plumbing work at Gaylord-White HOUSES, Proj. NYS-95, southeast portion of E. 105 St., 2 Ave., E. 104 St. and 3 Ave., Manhattan Boro. $3,500,000. Plans deposit $75. Extended date. CD 9/21/61.

▲ N. Y., **East Meadow**—BA 11/14—Nassau Co., Old County Court House, Franklin Ave., Mineola, combined bids 4 story LABORATORY, Meadowbrook Hospital, $3,000,000, CD 11/4/60; ELECTRONIC CANCER TREATMENT BLDG., Meadowbrook Hospital, $3,264,000, CD 9/5/61. Eggers & Higgins, 100 E. 42 St., New York, archts. V. L. Falotico Assocs. 26 Court St., Brooklyn, Zone 2, mech. engrs. Kenneth J. Tomann, 450 7 Ave., New York, Zone 1, struct. engr. CD 9/5/61.

BUILDINGS—SLC

▲ D. C., **Wash.**—Judith Gerber, Inc., 1800 Eye St. N.W.. soon lets contract 12 story OFFICE, 900 17th St. N.W. $4,000,000. Berla & Abel, 2000 P St. N.W., archts. CD 1/26/61.

▲ N. Y., **Syracuse**—Lemoyne College, Salt Springs Rd., soon lets contract women's DORMITORY, Men's DORMITORY, CAFETERIA. $2,500,000. Pederson, Hueber & Hares, 224 Harrison St., archts. CD 9/15/61.

▲ Pa., **Pittsburgh**—St. Anne Catholic Congregation, 4040 Willow Ave., soon lets contract CHURCH RECTORY and CONVENT. $1,850,000. Edward J. Schulte, 920 E. McMillan, Cincinnati, O., archt. CD 12/28/60.

HEAVY CONSTRUCTION—LB & CA

▲ **NEW YORK**—State Dpt. P. Wks., State Office Bldg., Albany, ROAD,
rejected bids Aug. 24, c. conc. pavement 4.02 mi., b. conc. 0.43., misc. work 0.05 mi., acc. 1.53 mi., b. conc. 0.43., misc. work 0.05 mi., acc. 1.53 mi. c. conc. pavt., b. conc. 3.76 mi., 4.5 mi. Int. Rte. 506 Niagara Expressway, Contr. 5, North Grand Island Bridge to Stephanson Ave., Stephenson Ave. to Gill Creek, Porter Ave., Pt. 1 SH 1756, Porter Ave., Pt. 2, SH 1858, Proj. EACI-EACIG 190-1(143) S 606 (2) Contr. NIE 61-5, FINIE 61-4, FARC 61-129, Niagara Co. LB **$8,377,749**. CD 8/25/61, under LB.

▲ **George Tripp, Inc.**, 3260 Elizabeth Lake Rd., Pontiac, Mich., LB **$3,855,279**, est. $4,168,500, Contr. A, SEWERS, FEASTERVILLE, PA. Lower Southampton Bucks, Municipal Auth., Feasterville, Pa., BA 9/28/61. CD 9/7/61;
McElwee Courbis Constr. Co., Box 1236, Camden, N. J., LB **$242,000**, est. $242,000, SEWAGE PUMPING STATIONS, (Feasterville, Pa.).

▲ **J. Richard Nissley**, Landisville, Pa., CA **$4,666,946**, Jones Falls Expressway INTERCHANGE, Belvedere Ave. (Northern Blvd.), BALTIMORE, MD. City, Bureau Hys., 303 Municipal Bldg., Baltimore 2, Md. BA 9/13. CD 9/15/61, under LB.

BUILDINGS—LB & CA

▲ **Malan Constr. Co.**, 2 Park Ave., New York 16, N. Y., CA Est. **$5,000,000**, two 8 story bldgs. HOME for the AGED, Seagirt Blvd., FAR ROCKAWAY, N. Y. Hebrew Institute of Long Island, Seagirt Blvd., Far Rockaway, N. Y. Samuel A. Alderstein & Assocs., 118 E.28 St., New York 16, N. Y., archts. Martin Lovett, 101 Park Ave., New York 17, N. Y., struct. engr. Bressman & Morgan, 118 E.28 St., New York 16, N. Y., mech. engrs.

▲ **Kibel Co. Inc.**, 2727 Palisade Ave., New York, N.Y. Owner builds **$1,300,000**, 6 story, 144x300 ft. APARTMENT, 42-60 Main St., FLUSHING, N.Y. Henry Kibel & Edward Roso, 2727 Palisades Ave., New York, N.Y., archts.

▲ **Fort Hill Realty Corp.**, 73-10 88 St., Glendale, N. Y., Owner Builds, **$3,000,000**, two 6 story APARTMENTS, Thornton Terrace, Burs St. and Thornton Pl., FOREST HILLS, N. Y. CD 6/20/61.

▲ **Vertex Constr. Corp.**, 185 Madison Ave., New York 16, N.Y. LB **$2,058,388**, general contract JUNIOR-SENIOR HIGH SCHOOL, Buckley St., LIBERTY, N.Y. Bd. Educ., Liberty Central School Dist. No. 1, Liberty, N.Y. Albert E. Peters Assocs., 214 North 9 Ave., Scranton, Pa., mech. engrs. Robt. Floyd, 484 Main St., Geneva, N.Y., struct. engr. BA 10/4. CD 8/31/61.

▲ **Diesel Constr. Co. Inc.**, 642 5 Ave., New York 22, N. Y., CA Over **$2,000,000**, 15 story APARTMENT, Lexington Ave. and E. 63 St., NEW YORK, N. Y. David Frankel, 654 Madison Ave., New York 21, N. Y. Resnick & Green, 654 Madison Ave., New York 21, N. Y., archts. **(Correction-contractor)**. CD **1/4/61**, under CA.

▲ **Jesse Segal**, 16 Court St., Brooklyn 2, N. Y., Owner Builds, **$2,000,000**, 17 story, rein.-con. APARTMENT, 435-455 W. 57 St., NEW YORK, N. Y. Philip Birnbaum, 12 E. 48 St., New York 17, N. Y., archt.

▲ **Alexander Caplan**, 5 Dorset Lane, Short Hills, N. J., Owner Builds, **$3,500,000**, 75 HOUSES off Clover Hill Rd., Atlantic Township, Colts Neck, RD 1, COLTS NECK, N. J. Walter Pfeiffer, 109 Washington St., Morristown, N. J., archt.

▲ **Edmund H. Cheval, Inc.**, 492 Paramus Rd., Paramus, N. J., CA **$1,306,000**, general contract, JUNIOR-SENIOR HIGH SCHOOL, EMERSON, N. J. Bd. Educ., Boro Bemerson, Linewood Ave., Emerson, N. J. BA 8/31/61. CD 9/5/61, under LB.

▲ **Joseph L. Muscarelli, Inc.**, Essex St. and Rte. 17, Maywood, N. J., CA Est. **$3,000,000**, LABORATORY and OFFICE, South Orange Ave., LIVINGSTON, N. J. Tishman Realty & Constr. Co., Inc., 666 Fifth Ave., New York 20, N. Y. Foster Wheeler Corp., lessee. **(Correction-owner)**. CD 7/5/61, under Foster Wheeler Corp. as owner.

▲ **S. Levenstein & S. Paintiere**, 858 Westminster Ave., Hillside, N. J., Owner Builds, **$1,500,000**, 50 HOUSES, Wood's Mall, Maple, NEW PROVIDENCE, N. J. Katz & Mirsky, 875 Broad St., Newark, N. J., archts.

▲ **Lagoon Park, Inc.**, c/o Danti D'Anastasio, archt., 1815 Federal St., Camden, N. J., Owner Builds, **$1,500,000**, 150 HOUSES, Captain's Cove on Hickory Island, Little Egg Harbor Township, TUCKERTON, N. J. Fellows & Read, 310 Main St., Toms River, N. J., engrs.

▲ **Raymond Favara & Frank Furman**, 24 Market St., Saddle River, N. J., Owner Builds, **$4,000,000**, 168 HOUSES, Furman Drive, WAYNE, N. J. Martin Gebhardt, 201 Broad Ave., Fairview, N. J., and Bernard DiPaola, 29 Church St., Paterson, N. J., archts. Canger Engineering, 6-20 Plaza Rd., Fair Lawn, N. J., engr.

▲ **Sutton Place Developers, c/o Evans Realty Co.**, owner, 12 E. 24 St., Baltimore 18, Md., CA Est. **$5,000,000**, First Phase Mt. Royal Plaza Development, 14 story Sutton Place APARTMENT, incl. 2 story PARKING BLDG. BALTIMORE, MD. Schwab, Jewell & Wolf, 2506 N Charles St., Baltimore 18, Md., archts. CD 1/7/60

▲ **Merando, Inc.**, 4098 Minnesota Ave. N.E., Wash., D. C. CA **$1,925,789**. Cumberland Hall DORMITORY and DINING HALL WING No. 2, COLLEGE PARK, MD. Maryland University, College Park, Md. BA 9/19. CD 9/21/61, under LB.

SOUTH

HEAVY CONSTRUCTION—BA

▲ Ga., **Atlanta**—BA 10/30—City, City Hall, AIRPLANE HANGAR, MAINTENANCE BLDG. Atlanta Municipal Airport. $2,000,000. Extended date. Robert & Company Assocs., 96 Poplar St. NW, archts. Eastern Airlines, lessee. CD 9/19/61.

BUILDINGS—BA

▲ Va., **Fairfax**—BA 11/2—Fairfax County Bd. Educ., Fairfax, George Marshall HIGH SCHOOL, near Tysons Corner. $2,200,000. Plans deposit $75. Picket & Seiss, 110 Gordon Rd., Falls Church, archts. CD 6/13/60

▲ Ky., **Bowling Green**—BA 11/6—Commonwealth Ky., Div. Purchases, Frankfort, 1,640,000 sq. ft. brick, rein.-con. ACADEMIC-ATHLETIC BLDG., Western State College. $2,500,000. Plans deposit $100. R. Ben Johnson, 1581 Stop-N-Shop Court, Owensboro, and Frank Cain, Kentucky Bldg., Bowling Green, archts. Charles Wade, 501 E. Center St., Madisonville, engr. CD 9/21/61.

▲† Ga., **Thomasville** — BA 11/9—General Services Admin., Room 146c, Peachtree Seventh Bldg., 50 Seventh St., NE, Atlanta, Zone 23, 3 story, 17,500 sq. ft. POST OFFICE and COURTHOUSE BLDG., Appr. No. 47x1147, Proj. No. 09905. Plans deposit $50. CD 4/13/61.

▲ La., **Morgan City**—BA 11/14—Town, New Courthouse, P-101 general constr., P-102 fdn. piling; P-103 piping; P-104 electrical work; P-105 cooling waterpipe; P-106 cooling tower, POWER PLANT. Over $3,000,000. Bid on 1, all or any combination. Albert Switzer & Assocs., Inc., 2902 Florida Blvd., Baton Rouge, engrs. CD 6/11/60.

HEAVY CONSTRUCTION—LB & CA

▲† **Acme Missiles & Constr. Corp.**, 43 North Village Ave., Rockville Centre, N.Y., LB **$3,035,000**, (12 bidders), Site III Facilities, EXPERIMENTAL TRAINING FACILITY, Camp Peary, NBy-37141, WILLIAMSBURG, VA. Dist. P. Wks. Office, Fifth Naval Dist., Room 307, Bldg. N-26, U.S. Naval Station, Norfolk, Va. BA 10/5/61. CD 9/6/61.

▲ **Cleary Bros. Constr. Co.**, P.O. Box 1228, 508 Comeau Bldg., West Palm Beach, Fla., LB **$2,727,909**, est $3,900,000, (7 bidders), 3 mi. CAUSEWAYS and BRIDGES, across San Carlos Bay, from Punta Rassa (Mainland) and Sanibel Island, FORT MYERS, FLA. Bd. Comrs. Lee Co., Courthouse, Fort Myers, Fla. BA 10/2/61. CD 8/30/61.

PROJECTS COVERED

By Size

Construction projects here reported cover the United States and Canada, are of these minimum sizes or larger: water supply, earthwork, waterways $53,000; other public works $88,000; Industrial buildings $110,000; other buildings $400,000. Also Foreign projects of $1,000,000 and more in size of Interest to American contractors.

By Regions & Classes of Construction

(In order of Listing)

BIDS ASKED
LOW BIDDERS
CONTRACTS AWARDED
New England
Middle Atlantic
South
Middle West
West of Mississippi
Far West

PROPOSED WORK
Water Supply
Sewers, Waste Disposal
Bridges
Streets & Roads
Earthwork, Waterways
Public Buildings
Mass Housing
Commercial Buildings
Industrial Buildings
Unclassified

In These Stages

PROPOSED WORK: Before and including appointment of engineers or architects.
BIDS ASKED: BA (new announcements only). For full calendar, see also preceding issues.

SOON LETS CONTRACT: SLC

LOW BIDDERS: LB On jobs below $500,000 in value all low bidder news will be the final reports published on the projects involved except where award is not made to the low bidder. In this case, a supplementary contract award report will be published.

CONTRACTS AWARDED: CA Except awards to low bidders previously reported in low bidder stage.

CD dates shown are of Construction Daily Issue in which last previous report was published.
OWNERS, ENGINEERS, ARCHITECTS, CONTRACTORS are invited to report their new jobs for listing in these reports when they meet or exceed the size minimums shown above. Address these news releases to J. A. Mahoney, REPORTS, ENGINEERING NEWS-RECORD, 330 W. 42 St., New York 36, N. Y.

Symbols and Abbreviations Include:

†	Federal Government
▲	Project of $1,000,000 or over.
ENR	Engineering News-Record
CD	Construction Daily

For additional reports see Construction Daily.

▲ **J. A. Jones Constr. Co.,** 805 Lambert Dr., NE, Box 13247, Atlanta, Ga., CA **$4,480,350,** Eastern Air Lines, Inc., JET OVERHAUL FACILITIES, Miami International Airport, MIAMI, FLA. Dade County Port Auth., 10th Floor County Courthouse, Miami, Fla. BA 9/7/61, CA 10/3/61. CD 10/11/61, under LB.

▲ **ALABAMA**—State Hy. Dpt., Montgomery, Zone 4. Bids opened 9/29, BRIDGES,

Ala.—**L. G. Wassen Coal Mining Corp.,** Boonville, Inc., LB **$1,559,459,** 0.262 mi. bridges over Coosa River E. of Riverside on Inter Rte. 20, St. Clair-Talladege Counties;

Ala.—**Brooks & Mixon, Contractors,** Box 1236, Decatur, Ala. LB **$115,805,** 0.137 mi. bridges over Wolf and Kelly Creeks on road from Eden SW to Shelby County line, St. Clair Co.;

Ala.—**Laidlaw Contr. Co.,** Wolf Ridge Rd., Mobile, Ala., LB **$136,745,** 0.704 mi. bridges and approaches at Oakmulgee Creek on County Road 47 NW of Selma, Dallas and Perry Counties. CD 9/13/61.

▲ **ALABAMA**—State Hy. Dpt. Montgomery, Zone 4. Bids opened 9/29, ROADS,

Ala.—**Moss-Thornton Co.,** Box 127, and **Southern Amiesite Asphalt Co.,** both Leeds Ala., LB **$1,747,879,** base, bit. pave. 11.29 mi. US 78 from Sayre SE to Adamsville, Jefferson Co.;

Ala.—**Moss-Thorton Co., Inc.,** P.O. Box 127, Leeds, Ala. LB **$725,888,** grading 3.824 mi. on US 431 from point near Calhoun-Etowah County line, S. toward Anniston, Calhoun Co.;

Ala.—**Newell Roadbuilders, Inc.,** Hope Hull, Ala., LB **$1,060,826,** grading, bit. pave. 2.845 mi. from Shorter NE to Calebee Creek on Inter Rte. 85, Macon Co.;

Ala.—**Flaco Corp.,** 1326 Engine St., Box 5096, Whistler, Ala., LB **$1,868,576,** base, bit. pave. 3.525 mi. from Old Shell Rd. NE. to U. S. 45 in Mobile on Inter. Rte. 65, Mobile, Co.;

Ala.—**Clyde O. Mitchell,** 2890-35th Ave. N., Birmingham, Ala., LB **$1,450,220,** grading, bit. pave. mix 6.234 mi. U. S. 43 from Spruce Pine N. toward Isbell with spur, Franklin Co.; CD 9/13/61.

▲ **Kelly-Generes Constr. Co.,** 4216 Piety St., New Orleans, La., CA **$1,535,316,** DRAINAGE CANAL, SEWERS, WATER MAINS, STREET PAVING, Lake Oaks Subdivision, NEW ORLEANS, LA. Orleans Levee Bd., Courthouse, 418 Royal St., New Orleans, La. BA 9/28, CA 9/30. CD 10/4/61, under LB.

BUILDINGS—LB & CA

▲ **Albany Contractors, Inc.,** P.O. Box 2063, Albany, Ga., LB **$2,069,000,** 206 low rent HOUSING UNITS, MACON, GA. Macon Housing Auth., 1103 Oglethorpe St., Macon, Ga. BA 10/4/61. CD 9/8/61.

▲ **Clutter Constr. Corp.,** 377 Westward Dr., Miami Springs, Fla., LB **$1,560,000,** (7 bidders), WOMEN'S DORMITORY asd STUDENT UNION BLDG., 11300 NE 2nd Ave., Miami Shores, MIAMI, FLA. Barry College, 11300 NE 2nd Ave., Miami Shores, Fla. BA 10/3/61. CD 9/12/61.

▲ **Sam Damson, Jr.,** First National Bank Bldg., Mobile, Ala., Owner Builds, **$2,000,000,** 152 unit garden type APARTMENT, Spring Hill Area, MOBILE, ALA. CD 6/5/61.

▲ **L. W. Eaton Constr. Co.,** Box 767, Baton Rouge, La., LB **$1,777,000,** (10 bidders), 2 story, rein-con. frame, brick, precast concrete STORE, BATON ROUGE, LA. Sears Roebuck Co., Capitol House Hotel, Baton Rouge, La. A. L. Aydelott & Assn., 2080 Peabody Ave., Memphis, Tenn., archts.

▲ **R. P. Farnsworth & Co.,** Box 850, New Orleans, La., CA **$4,170,000,** pavillion type UNION BLDG., BATON ROUGE, LA. Louisiana State University, Purchasing Dpt., Baton Rouge, La. BA 8/31, CA 9/30. CD 9/6/61, under LB.

MIDDLE WEST

HEAVY CONSTRUCTION—BA

▲ **MICHIGAN and ONTARIO**—BA 10/26—International Bridge Auth., at City Sault Ste. Marie, City Hall, Sault Ste. Marie, Mich.,

Contr. 8, concrete deck, railings, drainage and electrical work for American River spans of Sault Ste. Marie International Bridge. Plans deposit $35. Steinman, Boynton, Gronquist & London, 117 Liberty St., New York 6, consult. engrs. CD 6/15/54.

BUILDINGS—BA

▲ **Ill., Chicago**—BA 12/12—Chicago Housing Auth., 608 S. Dearborn St., Zone 5, 953 unit 41st-St. and Lake Park HOUSING APARTMENT, Proj. Twp. 41, $7,000,000. CD 5/23/61.

HEAVY CONSTRUCTION—LB & CA

▲ **Power Constr. Co.,** 125 S. Marion St., Oak Park, Ill., CA **$4,000,000,** MAUSOLEUM, HILLSIDE, ILL. Catholic Cemeteries, 1400 S. Wolf Rd., Hillside, Ill. BA 9/14/61. CD 9/22/61, under LB.

BUILDINGS—LB & CA

▲ **Knowlton Constr. Co.,** 1133 W. Columbus St., Bellefontaine, O., CA **$3,168,822,** 4 unit DORMITORY, DINING ROOM, Kent State University, KENT, O. Dpt. P. Wks., State Depts. Bldg., Columbus, O. BA 9/27/61. CD 10/3/61, under LB.

▲ **Metropolitan Structures,** 168 N. Michigan Ave., Chicago 1, Ill., Owner Builds, **$7,000,000,** 27 story, 97x109 ft. 265 unit, rein.-con. APARTMENT, 2400-16 Lakeview Ave., CHICAGO, ILL. Mies Van Der Rohe, 230 E. Ohio St., Chicago, Ill., and Greenberg & Finfer, 58 E. South Water St., Chicago 1, Ill., archts. CD 5/15/61.

For Soil Compaction Close to Walls, Culverts and Abutments —in Trenches, Ditches

WHEN CONSTRUCTION JOBS CALL FOR SOIL COMPACTION

BARCO is the ANSWER!

When You're Figuring For The "Low Bid"—No other tool can give you the economy and dependability offered by Barco Rammers on high degree soil compaction for all kinds of projects—Highways, Freeways, Hydroelectric Power and Flood Control Dams, Airports, Bridges, Defense Sites, Buildings, and Housing Developments!

When You Have To Meet Tough Specifications—In test after test, Barco Rammers have demonstrated their ability to deliver 95% to 97.5% compaction (modified Proctor Method)—EASILY! EFFICIENTLY! ECONOMICALLY! The Barco Rammer is especially useful for compacting fill in restricted areas. ASK FOR A DEMONSTRATION.

When You're Up Against A Tight Schedule—One of the biggest advantages offered by Barco Rammers is ability to handle work in minimum time. On area tamping, one man can average 20 to 30 cubic yards of fill per hour. On trench back fill, using lifts up to 24", the rate for 18" trench is 360 to 600 feet per hour. *When time is at a premium,* BARCO PERFORMANCE PAYS DIVIDENDS—find out about it NOW!

Sold and Serviced by the Nation's Leading Distributors

FOUNDED 1908

BARCO BARCO **RAMMER**

PRODUCTS BACKED BY EXPERIENCE

BARCO MANUFACTURING CO.
514L Hough St., Barrington, Illinois

Gentlemen:
YES! I want to know about Barco Rammers for Soil Compaction:

Name______________________________

Company______________________________

Address______________________________

☐ Please send me the name and address of your nearest dealer.

☐ Without obligating me, I would be interested in a DEMONSTRATION.

☐ Please send General Catalog No. 621.

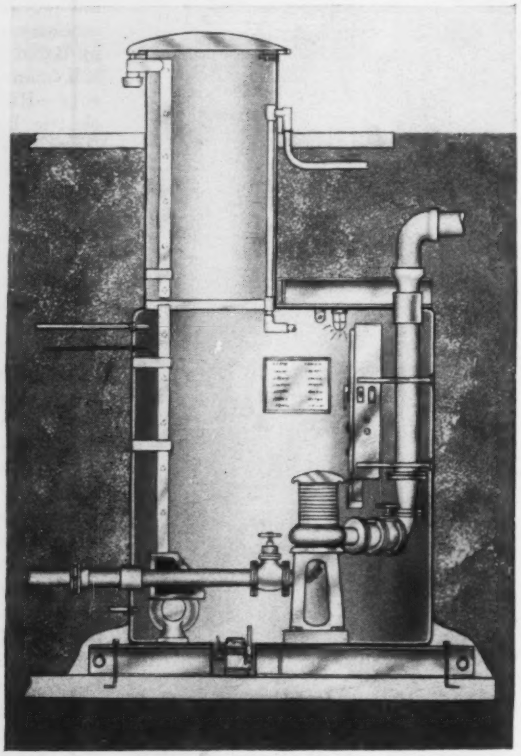
☐ Please send free bulletin on "SOIL COMPACTION COST DATA."

weil
PUMP
COMPANY

FACTORY
ASSEMBLED
SEWAGE
LIFT STATIONS

America's Leading Manufacturer Of Pumping Equipment
Now Offers The Ultimate In Packaged Pumping Stations

- Automatic Operation
- One Day Installation
- No Field Welding
- Non-Clog Sewage Pumps
- Automatic Controls
- Floodproof Station
- Minimum Maintenance
- Dehumidified Ventilation
- Completely Guaranteed



Weil Pump Company has engineered and manufactured a pre-fabricated sewage lift station to meet your specifications and demands. All the finest Weil equipment; factory assembled, pre-wired, tested and delivered to your site ready for fast, easy installation.

Send for
BULLETIN
NO. LS 2200

weil PUMP COMPANY

1528 N. Fremont Street, Chicago 22, Illinois

MISSISSIPPI TO ROCKIES

BUILDINGS—BA

▲ **Okla., Tulsa**—BA 11/21—City, City Hall, CIVIC CENTER ASSEMBLY, $7,000,000 Plans deposit $250. Extended date. Edward Stone, 38 E. 65th St., New York, N. Y., archt. Murray Jones & Murray, 4238 S. Peoria St., Tulsa., assoc. archts. CD 10/5/61.

HEAVY CONSTRUCTION—LB & CA

▲† **Western Contg. Corp.**, 400 Benson Bldg., Sioux City, Iowa, CA **$5,545,552**, Stage No. 2, EARTHWORK, Big Bend Proj., near Thompson, ENG-25-066-62-15, SOUTH DAKOTA. U. S. Eng., 215 N. 17th St., Omaha, Neb. BA 9/21/61. CD 9/25/61, under LB.

▲ **T. L. James & Co., Inc.**, P.O. Box 8, Kenner, La., LB **$1,894,645**, 2 mi. 5 million cu. yd. materials, DREDGING, Houston Ship Channel, Carpenter Bayou to Patrick Bayou, ENG-41-243-62-5, Houston, TEXAS. U. S. Eng., P.O. Box 1229, Galveston, Tex. BA 9/19/61. CD 8/23/61.

BUILDINGS—LB & CA

▲ **Walter Kidde, Engineers, Southwest, Inc.**, 1205 Holman St., Houston, Tex., CA Est. **$2,500,000**, 186,000 sq. ft. PLANT, 186,000 SHIPPING BLDG., 24,000 sq. ft. OFFICE, SHERMAN, TEX. Johnson & Johnson, 500 George St., New Brunswick, N. J.

▲ **Mead & Mount Constr. Co.**, 1560 Denver Club Bldg., Denver, Colo., CA **$5,535,000**, 12 story, 280,000 sq. ft. HOSPITAL ADDN., DENVER, COLO. St. Joseph's Hospital, 1818 Humboldt, Denver, Colo. BA 9/29/61. CD 10/3/61, under LB.

▲ **Mead & Mount Constr. Co.**, 1560 Denver Club Bldg., Denver, Colo., CA **$2,303,900**, 9 story, 130 x 75 ft. OFFICE BLDG., 2 story, 175 x 125 ft. PARKING GARAGE, East 12th and Lincoln Sts. DENVER, COLO. Western Farm Bureau Life Insurance Co., Mining Exchange Bldg., Denver, Colo. BA 9/13/61, CA 10/2/61. CD 9/22/61, under LB.

FAR WEST

HEAVY CONSTRUCTION—BA

▲ **Calif., Stockton**—BA 11/7—San Joaquin Co., Courthouse, 6 floors and uncomplete 7th floor 245,000 sq. ft. COUNTY COURTHOUSE. $5,546,913. Plans deposit $200. Clowdsley & Whipple, 206 Exchange Bldg., and Mayo de Wolf Assoc., 307 Exchange Bldg., archts. Arthur Sauer & Assoc., Exchange Bldg., Rm. 200, engrs. CD 10/27/60.

▲† **Utah, Hill Air Force Base**—BA 11/9—U. S. Eng., 180 New Montgomery St., San Francisco, Calif., 300 OFFICERS' HOUSING UNITS, Hill Air Force Base. $5,190,000. Snedaker, Budd, Monroe & Assocs., 12 Post Office Place, Salt Lake City 1, Utah, archts. CD 9/5/61.

▲ **Washington**—BA 11/10—R. W. Beck & Assocs., Tower Bldg., Seattle, PACKWOOD LAKE HYDROELECTRIC PROJECT, incl. turbine, generator, electrical equipment for Washington Public Power Supply System, Kennewick, Wash. $8,000,000. CD 10/24/58.

BUILDINGS—BA

▲ **Calif., Berkeley**—BA 10/31—Regents of University of California, c/o Archtects & Engineers, Berkeley, 9 floor rein.-con. Barrows Hall BUSINESS ADMINISTRATION. $4,570,000. Aleck L. Wilson & Assoc., 256 Sutter St., San Francisco, archts. Paquette & Maurer, 417 Market St., San Francisco, engrs. CD 3/2/61.

▲ **Calif., Montebello** — BA 10/31 — Montebello Unified School Dist., 123 S. Montebello Blvd., 1 and 2 story frame, stucco Schurr JUNIOR HIGH SCHOOL. $2,000,000. Kistner, Wright & Wright, 1125 W. 6 St., Los Angeles, archts. CD 2/15/61.

BUILDINGS—SLC

▲ **Calif., Selma**—Sun Maid Raisin Growers of California, 2902 Hamilton Ave., Fresno, soon lets contract 700,000 sq. ft. RAISIN PROCESSING PLANT, incl. 16 concrete tilt-up steel deck warehouses and 2 office bldgs., Hy. 99, near here. $3,700,000. Walter Wagner & Partners, 1830 Van Ness, Fresno, archts.-engrs. CD 2/17/61.

HEAVY CONSTRUCTION—LB & CA

▲ **UTAH**—State Rd. Comm., Salt Office Bldg., Salt Lake City, Zone 14, ROAD,
W. W. Clyde & Co., Box 231, Springville, Utah, CA **$2,230,477**, est. $2,500,000, constr. 4.747 mi. Interstate Hy. 15 from Lehi to American Fork six lanes wide Utah Co. BA 9/5/61, CA 9/15/61. CD 9/11/61, under LB.

▲ **CALIFORNIA**—State Div. Hys., 1120 N St., Sacramento, ROAD,
L. C. Smith Co. and Concar Rand & Enterprises, Inc., 225 19 Ave., San Mateo, Calif., CA **$4,096,371** grading, paving to constr. 2.6 mi. 4 lane freeway, State Hy. Rte. 105 between west Hillsdale Blvd. and South Delaware St., San Mateo Co. BA 9/13. CD 9/15/61, under LB.

▲ **CALIFORNIA** State Div. Hys., 1120 N St., Sacramento. Bids opened 10/4, ROAD,
Gallagher & Burk, Inc., 344 High St., Oakland, Calif., LB **$1,899,212**, (7 bidders), pave 1.7 mi. four lane freeway on Jackson St. (State Rte. 105) from Harder

(Continued on page 109)

HERE TO HOIST YOUR EARNING POWER TO NEW HIGHS

A NEW WORLD OF WORTH IN

'62 CHEVROLET JOBMASTER TRUCKS

LITHO IN U.S.A.

NEW HIGH TORQUE POWER

New Easy-View Styling!

NEW DIESEL MODELS

NEW JOB MATCHED EFFICIENCY

NEW CHEVIES BY THE HUNDREDS WITH NEW HIGHS IN HARD-WORKING POWER . . . NEW STYLING THAT DOES MORE FOR YOU . . . NEW JOB-MATCHED MODELS AND COMPONENTS . . . A NEW WORLD OF WORTH THAT'S OUT TO DO MORE WORK!

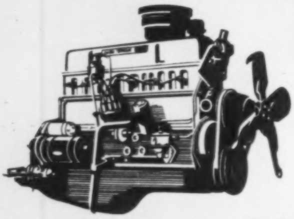
CHEVROLET

NEW HIGH-TORQUE POWER

POWER'S UP IN EVERY WEIGHT CLASS

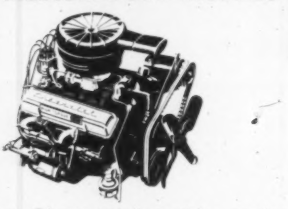
There's a new world of worth in the Chevy truck line for '62—trucks powered and built to work more, save more, *earn* more! Power's *up* in every weight class: big High Torque 261-cubic-inch 6* is new in light-duty models; new High Torque 327* powers middleweights; new 409 V8* puts out more pull in the heavyweight trucks. And there's new medium-duty *diesel* power, too—a sure income booster on extra-tough runs! A total of nine great High Torque engines enables you to match truck power to your job precisely for top performance and economy. **Optional at extra cost.*

NEW WIDER CHOICE OF LIGHT-DUTY POWER



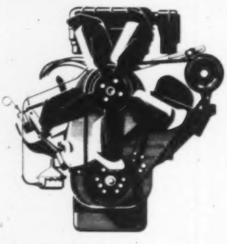
New for '62!—three famous work-proved Chevrolet truck engines for the Chevy light-duty line! Standard in all conventional models is the sure-saving High Torque 235 Six, a truck engine that's powered more payloads than any other in the history of hauling. *And, for 1962, the rugged, extra-durable 150-h.p. 261 Six is available at extra cost. Here's high torque power plus proved 6-cylinder economy—a combination that can put you money ahead on tough runs!* And, for the extra punch of V8 power, Chevy's 160-h.p. 283 V8 is available at extra cost.

NEW 327-CU.-IN. V8 FOR MEDIUM-DUTY MODELS



It's the biggest Chevy medium-duty engine yet, with more power and hard-pulling torque to keep maximum payloads rolling at minimum cost. Check the specs at your Chevy dealer's and you'll see scores of reasons for *efficient* performance: 185 h.p., 305 ft.-lbs. of torque, durable Moraine M-400 bearings, fuel-metering 2-barrel carburetor, hard-faced exhaust valves—premium components from top to bottom! New 327 V8 is optional at extra cost in Series 60 and 60-H. Economical heavy-duty 261 Six is standard in these models.

NEW 409-CU.-IN. V8 FOR HEAVY-DUTY MODELS

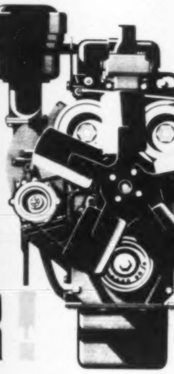


Here's the new dimension in High Torque power—409 cubic inches of efficient load-moving muscle, designed to *GO* and built to *keep* going in hard-pressed heavyweight duty. It's available as an extra-cost option for all Series 80 models, including the M80 tandems, with an extra wallop to get even king-sized loads under way in a hurry, and keep them moving easily and efficiently. You get 252 horsepower, and a whopping 390 ft.-lbs. of torque, backed by a build that just won't quit. It's loaded with the best in premium-quality, top-durability design features—assurance that your tough jobs are tamed for good!

1962 CHEVROLET HIGH TORQUE GASOLINE ENGINE (PERFORMANCE DATA AND APPLICATIONS)

HIGH TORQUE ENGINE MODEL	**145 SIX**	**235 SIX**	**235 SIX**	**261 SIX**	**283 V8**	**327 V8**	**348 V8**	**409 V8**
MAXIMUM GROSS HP @ RPM...	80 @ 4400	135 @ 4000	135 @ 4000	150 @ 4000	160 @ 4200	185 @ 4400	220 @ 4400	252 @ 4000
MAXIMUM NET HP @ RPM......	65 @ 3600	115 @ 3600	110 @ 3600	130 @ 3800	137 @ 4000	158 @ 4000	180 @ 4000	215 @ 4000
NET HP @ GOVERNED RPM......	——	——	——	——	——	156 @ 3700	180 @ 3700	213 @ 3700
GROSS TORQUE, LB.-FT. @ RPM.	128 @ 2300	217 @ 2000	217 @ 2000	235 @ 2000	270 @ 2000	305 @ 2000	325 @ 2600	390 @ 2400
NET TORQUE, LB.-FT. @ RPM..	118 @ 2200	195 @ 2000	192 @ 2000	218 @ 2000	250 @ 2000	280 @ 2000	300 @ 2400	352 @ 2400
DISPLACEMENT, CUBIC INCHES.	145	235	235	261	283	327	348	409
CARBURETOR TYPE............	Dual	Downdraft	Updraft	Downdraft	2-barrel	2-barrel	4-barrel	4-barrel
TRUCK SERIES APPLICATIONS								
AS STANDARD EQUIPMENT....	R10 (Corvair 95)	C10-50; L50; K10-20, P10	P20-30	C, L, T60, 60-H	——	——	C, L, M, T80	——
OPTIONAL AT EXTRA COST....	——	——	——	C10-50; L50; K10-20	C10-50; L50; K10-20	C, L, T60, 60-H	——	C, L, M, T80

©COPYRIGHT 1961, CHEVROLET DIVISION, GENERAL MOTORS CORPORATION

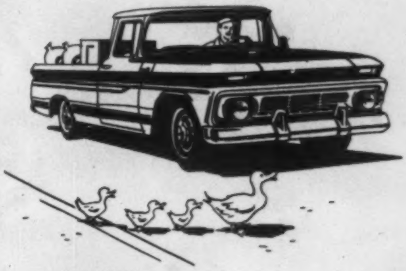


NEW DIESEL POWER

For '62, Chevrolet offers high torque diesel performance and economy—new money-making might for medium-duty trucks! With the rugged General Motors 4-53 Diesel engine, all the performance and economy advantages of diesel power can now be realized in full in this lighter weight class. This is the engine that has set new standards in the diesel power industry, with compact proportions, lightweight toughness and high performance combined to the highest degree. And the fuel economy, low upkeep and day-after-day dependability it delivers in hard-pressed, high-mileage operation more than live up to traditionally high diesel engine standards. Here's an engine that's designed to quickly pay for itself and cut operating costs throughout the life of the truck.

ENGINE SPECIFICATIONS AND PERFORMANCE DATA

Model	General Motors 4-53
Type	Two-Cycle Diesel
Displacement	212.3 cu. in.
Number of Cylinders	4
Bore & Stroke	3⅞ in. x 4½ in.
Compression Ratio	17 to 1
Maximum Brake Horsepower	130 @ 2800 RPM
Maximum Gross Torque	271 ft.-lb. @ 1500 RPM
Piston Speed @ 2800 RPM	2100 ft. per minute



NEW EASY-VIEW STYLING

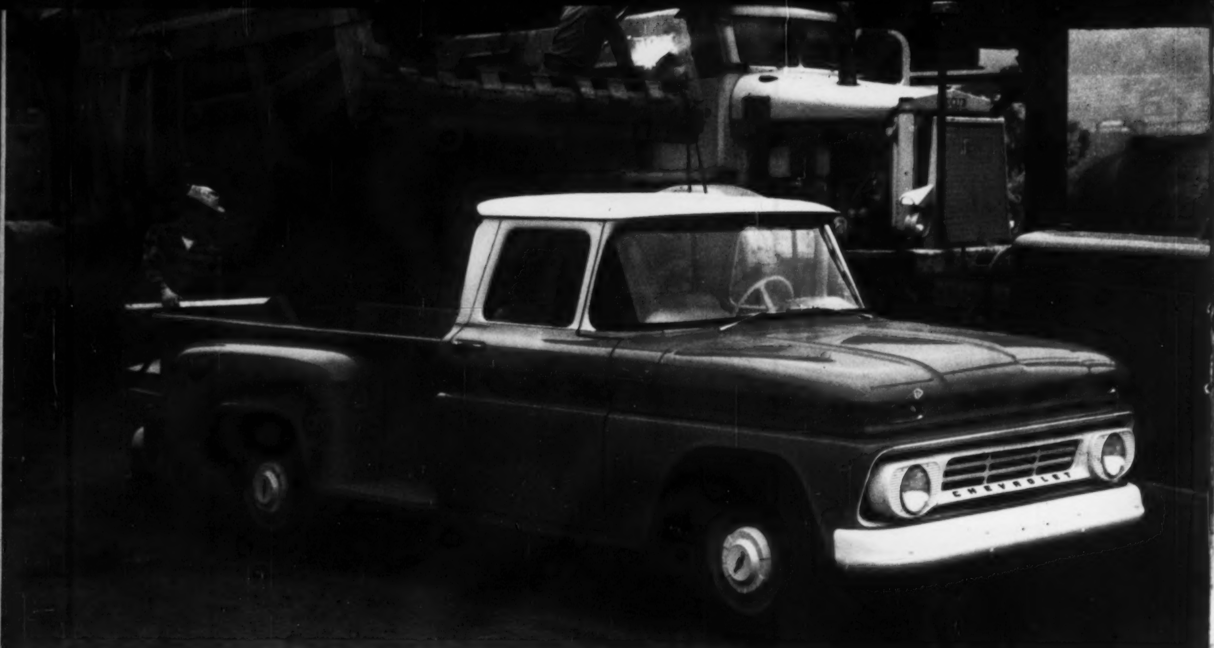
PRACTICAL NEW TRUCK APPEARANCE!

Thanks to Chevy's handsome new styling, drivers will *see* better on the job! Newly designed hood slopes neatly down at front and sides for maximum up-front visibility. It's a functional design that virtually eliminates blind spots for greater driver safety and efficiency.

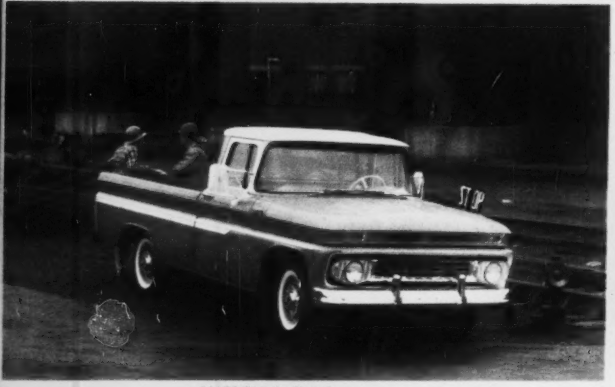
NEW JOB-MATCHED EFFICIENCY

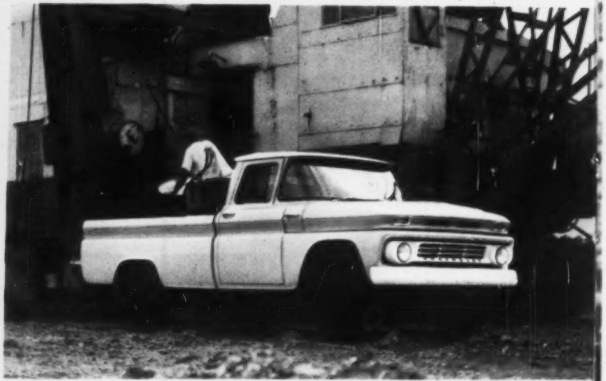
MORE MODELS TO HANDLE MORE KINDS OF JOBS!

→

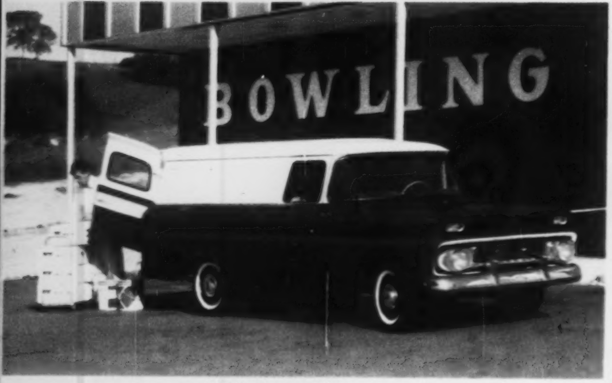


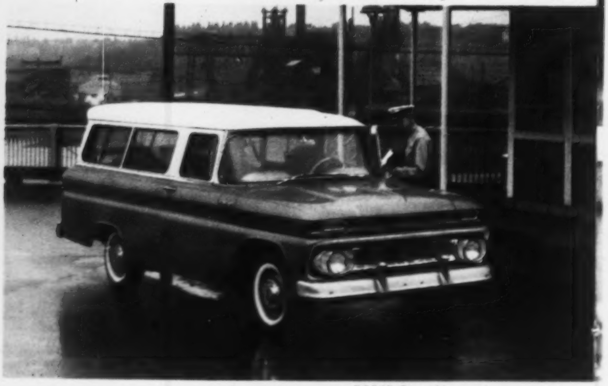
C1534 Fleetside Pickup ▾ C1504 Stepside Pickup ▴ K1534 4-WD Fleetside Pickup ▾



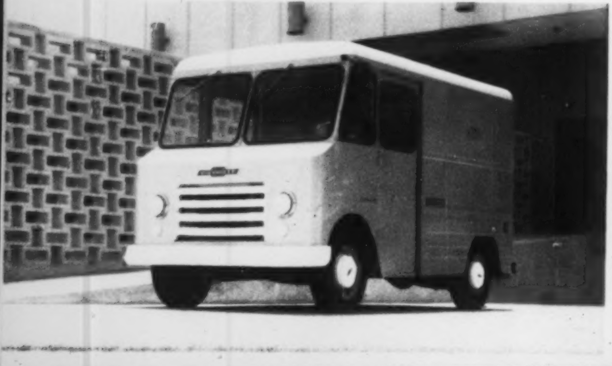


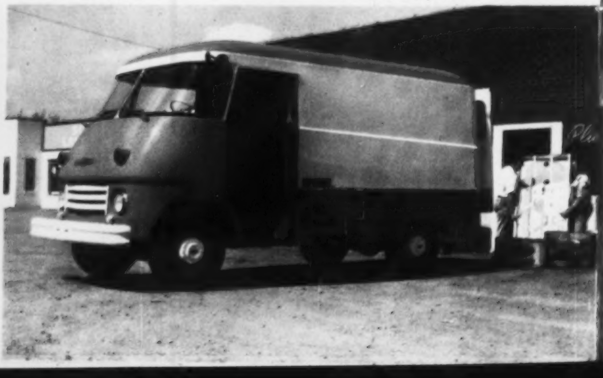
C1405 7½-ft. Panel ▾ C1416 Suburban Carryall ▾





P1345 Step-Van 7 ▾ P2545 Step-Van ▾





JOB-MATCHED LIGHT-DUTY MODELS FOR '62

CHEVIES FOR EVERY CHORE . . . READY TO MATCH YOUR WORK WITH PERFORMANCE THAT PUTS YOU DOLLARS AHEAD EVERY DAY IN THE WEEK!

Mention almost any light-duty job . . . and you'll find that Chevy for '62 offers a truck that's more than a match for it. Here's a *long* lineup of Jobmaster trucks, cost choppers for every chore with GVW's up to 10,000 lbs., sleek new Easy-View styling, more 6-cylinder power, advanced short-stroke V8's, the latest in tough truck components—everything that adds up to more economical, *more profitable performance.* Pick from *conventional* models with Independent Front Suspension, a proved paying advantage that saves on truck wear, cargo damage and maintenance expense . . . from *Forward Control* models that offer the latest in dollar-saving efficiency on stop-and-go runs . . . from go-anywhere 4-wheel drives that give up to twice the traction . . . from a complete roster of rugged light-duty Jobmasters, each one out to save extra dollars for owners in '62!

16 JOB-MATCHED PICKUPS

You get a new wider choice of 16 Chevrolet pickups for '62—6 handsome high-capacity Fleetside models, 8 convenient Stepside models—and a pair of rear-engine Corvair 95's, too! These huskies come equipped with *big* bodies (up to nine feet long) to handle outsized loads with ease. Sturdy close-fitting tailgates on all models reduce spillage of bulk cargoes; tough select-wood floors, recessed steel skid strips, and a low close-to-the-road build make loading and unloading a cinch. You'll go *first class* in any one of these pickups . . . get the benefit of sturdy-built construction, big comfortable cab—plus everything else you need to match your work with a brand of performance and economy that will save you time and money every day!

JOB-MATCHED ENGINES & COMPONENTS

Whatever you look for in a truck, Chevy's got plenty of it for '62! *Cabs* are big and roomy; built solid and sealed tight. *Frames* are of premium-quality steel with extra reinforcements. Rugged *rear axles* match your toughest jobs with top performance and economy. *Synchro-Mesh and fully automatic transmissions* are available for most models. Large diameter *brakes* assure safe, sure stops and long brake life. Smooth hydraulically actuated *clutches* match engine torque to work harder, last longer. *And there's never been so much light-duty power.* Standard is the famous fuel-saving High Torque 235 Six; optional-at-extra-cost power plants are the big hard-working High Torque 261 Six and short-stroke 283 V8.

ROOMY, RUGGED PANELS! Best choice for big loads—big savings, too—Chevy's panels come in 7½- or 10-ft. body lengths. Load spaces are 175 or 231 cubic feet, with payload capacities of up to 3,000 lbs. Cargoes have the protection of tight weather-sealed bodies and Chevy's cradle-soft Independent Front Suspension.

CARRYALLS FOR WORK LOADS OR LOADS OF FUN! Here's your answer if you mix business with pleasure—a 1962 Suburban Carryall! Combining station wagon styling with practical panel truck utility, the Carryall carries up to 8 adults or 950 lbs. of cargo with the seats removed. Four-wheel drive is also available for tough go-anywhere jobs.

STURDY LIGHT-DUTY STAKES! With room and brawn aplenty, these '62 Chevy stakes come with bodies of 8- or 9-ft. lengths to handle your bulkiest loads. Wheelbase lengths range from 127 to 133 inches with GVW's as high as 10,000 lbs. Tough wood bodies are extra durable, joined together by recessed steel bolts.

CHASSIS-CABS FOR MANY BODIES! Available for many special bodies, '62 Chevy light-duty chassis-cabs come in cab-to-axle lengths of 42, 54 or 60 inches. Featuring Independent Front Suspension and a wide choice of power, you can tailor these Chevies exactly to your job needs.

EFFICIENT STEP-VANS AND FORWARD CONTROL CHASSIS! Here's efficiency and economy for your stop-and-go runs—route-ready Step-Vans with bodies 8, 10, and 12 feet long and GVW ratings from 5,600 to 10,000 lbs. Large, roomy interiors and convenient sliding side doors make loading and unloading a breeze. Six Forward Control Chassis are also available for special body installations.

HANDY STEP-VAN 7! New walk-in convenience for light-duty route deliveries! You get a 7-foot body—211 cu. ft. of load space—astride an easy-handling 102-inch wheelbase. Power plant is the gas-saving High Torque 235 Six. And Chevy's Independent Front Suspension saves truck wear, reduces maintenance, cargo damage and driver fatigue.

GO-ANYWHERE 4-WHEEL-DRIVE CHEVIES! Chevy's 4-wheel drive gives you up to twice the traction to dig in and go where the going's roughest. You shift from 2- to 4-wheel drive and back again with just the flick of a lever. Available on pickups, panels, chassis-cabs and Suburban Carryalls.

OWNER-PROVED CORVAIR 95 EFFICIENCY

QUALITY IS THE KEY WORD HERE! Introduced a year ago, Corvair 95 pickups and Corvan have shown owners everywhere a brand of cost-cutting quality that's unique in this truck class. There's lasting worth in every one—starting with a sturdy build that features rugged unitized body-frame construction and tough double-walled body side panels, durable High Torque 145 Six engine that never needs water or antifreeze, low-maintenance unitized engine and transaxle drive (Unipack), smooth-going 4-wheel independent suspension (2,500-lb. rated capacity, front and rear!), to mention just a few! With a lineup of great features as long as your arm, these 1962 Corvair 95's are as *tough* as they are efficient—a fact they've amply demonstrated on scores of jobs the country over.

EFFICIENCY *never meant so much!*

Here are trucks that offer more cargo space for their size and weight than anything that's ever taken to the road. With a compact, *unitized* power train, the major portion of the chassis need accommodate only cargo and cab. The roomy Corvair 95 cab takes up little more than one third of the overall length . . . *and all the rest is load space,* over 9 feet of it, astride a nimble 95-inch wheelbase. And, with the load space located midships, truck and load weight is distributed *evenly*, which results in less strain on chassis and tires—performance that stays trouble-free longer.

CORVAN PANEL

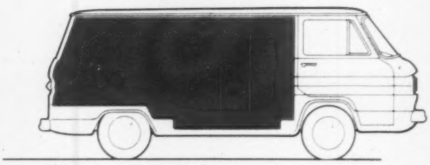
• Built for bigger earnings! • *Load space* 191 cu. ft. big! • High 1,700-lb. payload capacity! • *Big* double doors that open 4′ 5″ wide (right-side doors standard; left-side doors optional*). Wide-opening double rear doors! • Easiest loading—low 16¼″ side loading height! • High 4½-foot interior height for convenient cargo handling! • Extra ruggedness with integral body-frame design! • Better economy and traction provided by High-Torque 145 Six at rear! • Nimble maneuvering through short 95-inch wheelbase and smooth independent 4-wheel suspension! • Comfortable driver compartment with single driver's seat or optional* 3-man or right-hand auxiliary seat!

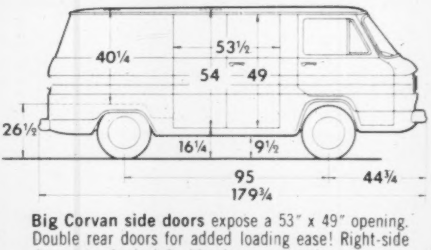
RAMPSIDE AND LOADSIDE PICKUPS

• More load space than conventional half-tonners! • Full-width pickup box gives 80 cubic feet of load space! Cargo capacity up to 1,900 lbs.; 4,600-lb. GVW! • Deep-well cargo area midships for bulky loads! • Low 16¼″ floor height saves work when loading! • Optional (extra cost) flat floor gives 37 sq. ft. of flat loading area, plus cargo area underneath! • Engine, transmission and axle combined in one compact unit at rear for maximum efficiency, easy servicing! • Sturdy integral body-frame design! • Independent 4-wheel suspension! • Short wheelbase and turning radius for easy handling! • Plenty of comfort in spacious 3-man cab!

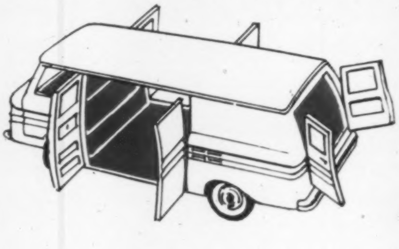
*Extra cost

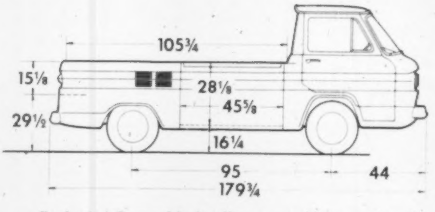
DRIVER'S UP FRONT
ENGINE'S IN THE REAR . . .
ALL THE REST
IS LOAD SPACE!



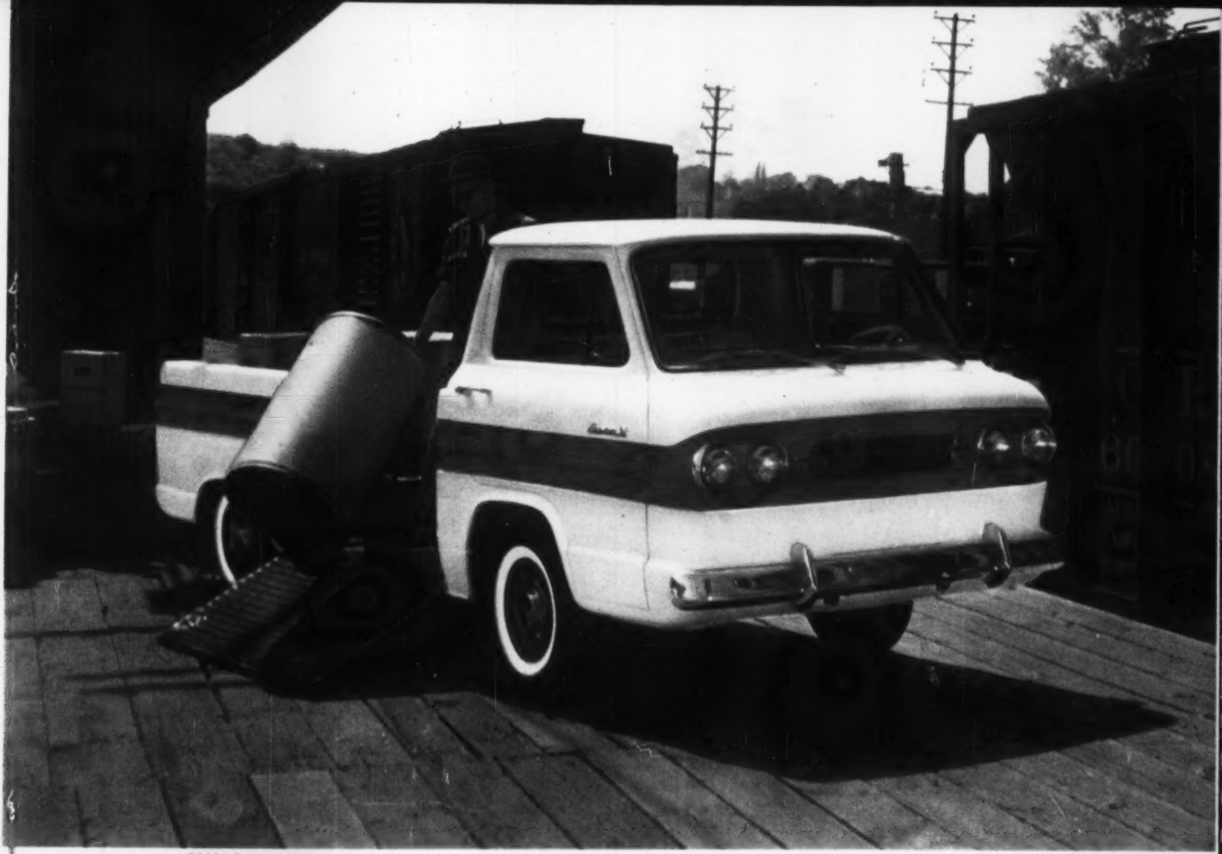


Big Corvan side doors expose a 53″ x 49″ opening. Double rear doors for added loading ease! Right-side doors standard; left-side doors optional, extra cost.



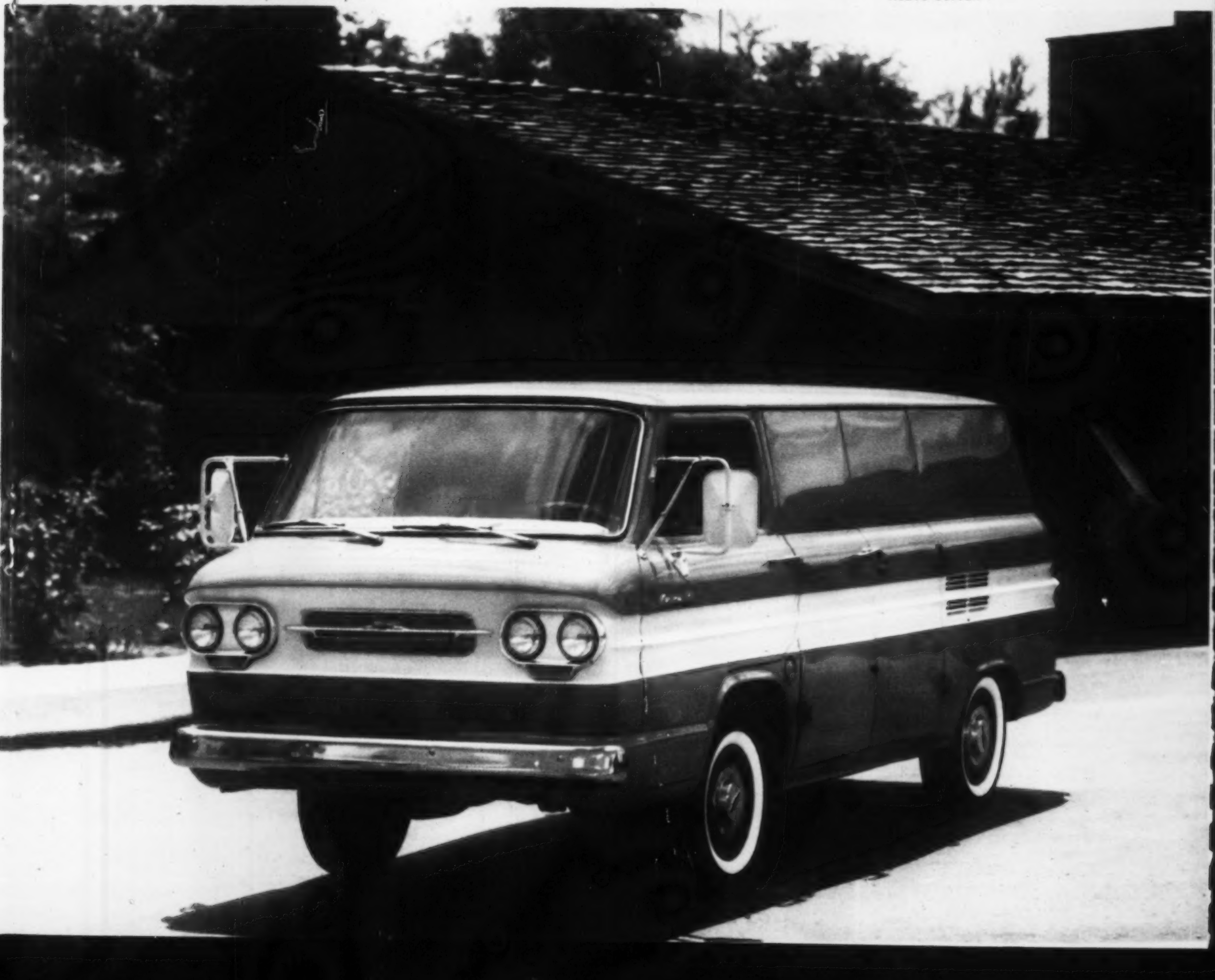


Exclusive Rampside loading ramp allows you to roll on heavy loads, improves working efficiency!



R1254 Rampside Pickup ▲

R1205 Corvan ▼



C5309 12-ft. Stake ▲

D6503 with 16-ft. Van Body ▲

T6303 with Van Semi-Trailer ▼

JOB-MATCHED MEDIUM-DUTY MODELS FOR '62

MORE EARNING POWER THAN EVER BEFORE

There's a bigger, stronger High Torque 327-cu.-in. V8 for Series 60 . . . new diesel power . . . famous work-proved 6's and V8's for every truck in this *long* lineup for '62! Every model gives you new Easy-View styling for better appearance, greater safety . . . advanced Independent Front Suspension to smooth the way to greater profits . . . a sturdy, comfortable cab to make work easier for the driver. From stem to stern, these new medium-duty Chevies are packed with tough truck components that last and save you more money in the long run. They're built to *stay* on the job and *pay* on the job—to deliver a brand of rock-ribbed performance that can't be beat in this weight class.

THREE CAB TYPES—Three basic cab types and a wide choice of wheelbases and components enable you to match the truck to your job ideally. Choose from 36 Conventional models; 18 Low Cab Forward Chevies (93½ inches from bumper to back of cab); or from 8 Jobmaster Tilt Cab trucks (only 72 inches from bumper to back of cab).

NEW DIESEL MODELS—Now you can dieselize your high-mileage medium-duty jobs with a model made to measure for them, and take full advantage of diesel power's long-lasting, big-saving ways. Chevrolet D60 Diesels come in 5 wheelbase lengths with GVW's as high as 19,500 lbs. In all models, transmission and rear axle gearing is tailored to the diesel's power output characteristics for best performance under all conditions.

CHEVROLET SERIES 60 DIESEL SPECIFICATIONS

Model	Wheelbase; Cab-to-Axle lengths	**Model**	**WB**	**CA**
		D6103	133"	60"
		D6203	145"	72"
		D6303	157"	84"
		D6503	175"	102"
		D6803	197"	124"
Gross Weight Ratings	GVW	15,000 to 19,500 lb.		
	GCW	32,000 lb.		
Axle, Front	Type	Independent Suspension		
	Rating	5000 lb.		
Axle, Rear	Make & Model	Chevrolet		
	Rating	15,000 lb.		
	Type	Single- or 2-Speed*		
Brakes, Service	Standard	Vacuum-Hydraulic		
	Optional	Air-Hydraulic*		
Engine	Make & Model	General Motors 4-53		
	Type	2-Cycle Diesel		
	Gross Horsepower	130 @ 2800 rpm		
	Gross Torque	271 lb-ft @ 1500 rpm		
	Clutch Dia.; Facing Area	13"; 178 sq. in.		
Generator	Type	A.C. Delcotron		
	Volts; Amps	12V; 52A		
Tires	Base Size	8-22.5/8PR Tubeless or 7.50-20/8PR Tube*		
	Maximum Size	10-22.5/10PR Tubeless* or 9.00-20/10PR Tube*		
Transmission	Make; Type	Clark 264VO; 5-Speed		
Wheels	Base	Chevrolet Disc		
	Optional	Budd 6-stud Disc* or Cast*		

*Extra-cost equipment.

NEW HIGH TORQUE 327 V8 ENGINE

Available at nominal extra cost for Series 60 models, Chevy's new High Torque 327 V8 engine brings 28% more net torque for extra performance ability on medium-duty jobs where heavy loads, difficult terrain or tight schedules place unusually severe demands on equipment. Traditional Chevy heavy-duty V8 durability stems from components like tough Moraine M 400 bearings, vacuum-spinner 3700 rpm governor, hard-faced exhaust valves, and self-adjusting hydraulic valve lifters.

FAMOUS 6-CYLINDER ECONOMY

Top fuel economy is what you get with either of Chevy's medium-duty truck 6's—the High Torque 261 Six or High Torque 235 Six. Featuring free-breathing valve-in-head design, these engines give you *efficient* power and extra economy by way of features such as standard oil filter, extra-duty alloy bearings oil bath air cleaner, forged steel crankshaft and many more.

WORK-PROVED COMPONENTS

A 1962 Chevy can take it, thanks to tough tailored-to-the-job components like these: tough-built frames with massive K-brace crossmembers; *wide range variable-rate rear springs*; *smooth 4- and 5-speed Synchro-Mesh transmissions* standard; *rugged rear axles* with durable hypoid gearing, capacities up to 17,000 lbs.; *big, safe brakes for all models* (vacuum-hydraulic boosters standard). When Chevy builds a truck, it's a *truck!*

M8503 Tandem with 10-Yard Body

NEW WIDER CHOICE OF CHOICE EQUIPMENT

JOB-MATCHED HEAVY-DUTY MODELS FOR '62

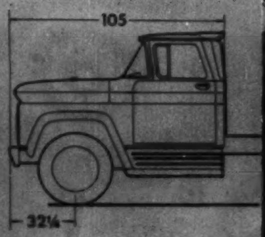
Here are the best of the big ones—a full range of heavyweights, rounding out the Chevrolet fleet for '62. Your choice includes lean-muscled Series 60-H models, brawny Series 80 models and mountain-moving Series M80 tandems. Chevrolet High Torque 6-cylinder or V8 power (or diesel power in 60-H models) pays off in money-saving payload performance on all kinds of heavyweight hauls. And in chassis construction Chevrolet's 1962 heavy-duty lineup leads the industry with advanced Independent Front Suspension system providing a smooth ride, sure roadability and ruggedness to spare. Variable-rate rear suspensions for all single-axle heavyweights offer wide range action, a better ride empty, plus plenty of capacity.

1962 TOUGH-TASK TANDEM MODELS—Three super-rugged six-wheelers make up Chevy's M80 tandem Series; measuring 84, 102 and 120 inches cab to axle, they offer broad coverage of the tandem field. They're built on extra-tough chassis, with smooth-riding Chevrolet Independent Front Suspension as standard equipment, and an advanced-design Eaton-Hendrickson 30,000-lb. tandem bogie back under the load. Chevy's High Torque V8 power can be teamed with transmissions to match severest on- or off-road jobs. Power steering is standard for easier handling when the going's tough.

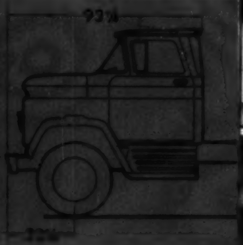
NEW SERIES 60-H GAS AND DIESEL TRUCKS—Rugged heavy-duty build . . . money-saving 6-cylinder power— that's what you get in every Series 60-H model. Standard power is the High Torque 261 Six; and, for 28% more working torque, the High Torque 327 V8 is optional at extra cost. *Also new for '62, tough 60-H Chevies are available with the special economy and low maintenance performance of diesel power, provided by the husky General Motors 4-53 Diesel.* Every model features big-load brawn built in throughout: ride-smoothing 7,000-lb. Independent Front Suspension system, rugged new 17,000-lb. rear axles, high 23,000-lb. GVW to master tough jobs like nothing else in this weight class!

CHOOSE FROM 3 CAB TYPES

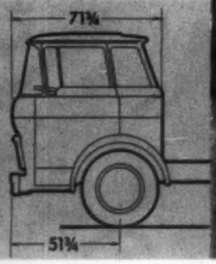
Conventional



Low-Cab Forward



Tilt Cab



T8603 with Refuse Body

BIG TRUCK POWER AND COMPONENTS

NEW HIGH TORQUE 409 V8—Here's the most powerful Chevy gas engine yet, ready to turn out a mountain-moving 352 ft.-lbs. of *net* torque and 213 *net* horsepower to help your biggest loads moving! Built-to-last features like inside-outside air intake system, hard-faced exhaust valves with Roto-Coil valve rotators, self-adjusting hydraulic valve lifters (and many more) assure long engine life. Optional, extra cost, Series 80.

STANDARD HIGH TORQUE 348 V8—Standard power for Chevy's Series 80 heavyweights is the big, brawny High Torque 348 V8, with 180 net horsepower and 300 ft.-lbs. of net torque. It's especially designed to move big loads at lowest possible cost with a big reserve of stamina, highest quality components. It's a premium engine throughout—in bearing and valve materials and in lubrication and cooling.

HIGH-CAPACITY LADDER-TYPE FRAMES—Deep-down durability starts right here—deep-section side rails of extra-tensile-strength steel are joined by massive ladder-type cross-members. The result is a frame that combines high strength and resilience to handle highest capacity loads.

KING-SIZED BIG TRUCK BRAKES—Top stopping power from job-tailored brakes ranging up to 15" x 3", front, and 15" x 7", rear, (Series 80 models),—up to 642 square inches of lining area. Standard diaphragm-type vacuum-hydraulic boosters deliver a big bonus of braking power without loss of natural pedal feel. Air-hydraulic or full-air brakes are optional at extra cost.

HEAVY-DUTY TRANSMISSIONS—Smooth-shifting 4- or 5-speed Synchro-Mesh transmissions are standard in all heavy-duty Chevies. Close-ratio 5-speed units are also available as well as extra-cost 3- or 4-speed auxiliary units for tandem models. Also available at extra cost is work-saving Powermatic.

OPTIONAL I-BEAM FRONT AXLE—For the most extreme off-road duty, 9,000- and 11,000-lb. capacity I-beam axles are optional at extra cost for Series C80, L80 and M80 tandem models.

(Continued from page 96)

Rd. to Mission Blvd., Castro St., Alameda Co. CD 8/30/61.

BUILDINGS—LB & CA

▲ **Anthony Enterprises Inc.**, 2259 South Shore center, Alameda, Calif. Owner Builds, **$2,600,000,** 8 story, 68 unit COOPERATIVE APARTMENT, ALAMEDA, CALIF. David Johnson, 1440 Broadway, Oakland, Calif., archt.

▲ **Perini Corp.**, 255 California St., San Francisco, Calif. LB **$4,463,000,** (7 bidders). RESIDENCE HALLS, Unit 3, BERKELEY, CALIF. Regents of the University of California, 103 Sproul Hall, Berkeley, Calif. John Carl Warnecke & Assoc., 55 New Montgomey St., San Francisco, Calif., archts. Isadore Thompson, 133 Kearny St., San Francisco, Calif., engr.

▲ **Cahill Bros.**, 350 Sansome St., San Francisco, Calif. CA **$7,500,000,** 17 story, 200,000 sq. ft. 100 unit rein.-con. APARTMENT, 1200 Lakeshore, OAKLAND, CALIF. 1200 Lakeshore Inc., c/o Simpson, Stratta & Assoc., archts.-engrs., 325 5 St., San Francisco, Calif. CD 4/18/61.

▲ **Perini Corp.**, 255 California St., San Francisco, Calif. CA **$2,241,000.** JUVENILE HALL and related facilities, SACRAMENTO, CALIF. Bd. Supervs. Sacramento Co., County Admin. Bldg., 827 Seventh St., Sacramento, Calif. BA 9/20. CA 10/3. CD 9/22/61 under LB.

▲ **F. E. Young Constr. Co.**, P.O. Box 2872, San Diego 12, Calif. CA **$2,300,000,** est. $3,138,900. James Madison SENIOR HIGH SCHOOL, Doliva Dr. and Javier St., Clairemont, SAN DIEGO, CALIF. San Diego Unif. School Dist., 4100 Normal Blvd., San Diego 3, Calif. BA 9/26. CA 10/3. CD 9/29/61 under LB.

CANADA

BUILDINGS—LB & CA

▲ **Angus Robertson, Ltd.**, 57 Bloor St. W., Toronto, Ont., CA **$2,013,000,** 78 x 365 ft. RETARDED CHILDREN PAVILION, 1 story, 80 x 200 ft. LAUNDRY BLDG., 2 story, 48 x 170 ft. TRADES BLDG., rein.-con., brick fdn., ORILLIA, ONT. Ontario Dpt. P. Wks., Rm. 6630, East Block, Parliament Bldgs., Toronto, Ont. BA 9/13/61. CD 9/19/61.

▲ **Anglin-Norcross Quebec Ltd.**, 892 Sherbrooke St. W., Montreal, Que., CA Est. **$20,000,000,** (9 bidders), 38 story circular Sheraton Cartier HOTEL, Peel and Sherbrooke Sts., MONTREAL, QUE. Peelbrooke Development Corp., c/o Senior Holdings Ltd., 1420 Sherbrooke St. W., Montreal, Que. BA 8/29/61. CD 8/14/61.

AMERICANS ABROAD

BUILDINGS—LB & CA

▲ **Procon Inc., Universal Oil Products Co.,** 1111 Mount Prospect St., Des Plaines, Ill., U.S.A., CA Est. **$35,000,000,** 40,000 bbl. per day OIL REFINERY on Gulf of Siam, SRIRICHA, THAILAND. Thai Oil Refinery Ltd., Bangkok, and group headed by Shell Oil Co., 50 W. 50 St., New York 19, N. Y., U.S.A. CD 9/29/61, under CA.

For additional reports see CONSTRUCTION DAILY REPORTS SECTION

PROPOSED PROJECTS

WATER SUPPLY

▲ **O. Willoughby Hills** (P.O. Willoughby)-Village, Village Hall, cancelled bond election Nov. 7, installing WATER LINES, **$2,315,000.** CD 8/17/61.

SEWERS, WASTE DISPOSAL

▲ **Ill., East St. Louis**—City, City Hall, SEWAGE TREATMENT PLANT, AUXILARIES, APPURTENANCES, **$3,000,000.** Bids late 1962 or 1963.

▲ **N. J., Oakland**—Boro of Oakland, Boro Hall, SANITARY SEWERAGE COLLECTION SYSTEM, TREATMENT PLANT. **$2,500,000.** Lee T. Purcell, 36 De Grasse St., Paterson, consult. engr. CD 9/27/61.

▲ **O., Toledo, City Safety Bldg.**, SANITARY SEWERS to Mt. Vernon and Reynolds Rd., Chicago Rd., Chicago Pike Areas, **$4,700,000;** TRUNK SANITARY SEWERS, for Glendale Dist., bounded by Swan Creek, Reynolds Rd., Ohio Turnpike, Scott St., Heather Downs Blvd., Bryne Rd., Glendale Ave., Toledo Terminal R.R. tracks, approx. 1,800 acres, **$2,400,000;** TRUNK SANITARY SEWERS for Stickney and Suder Dist., North Toledo, bounded by Detroit Ave., Michigan State Line, Ottawa River and Suder Ave., abt. 4,000 acres, $5,400,000; RELIEF SEWER for Ten Mile Creek Interceptor Sewer. **$1,100,000.**

BRIDGES

▲ **LOUISIANA**—State Hy. Dpt., Hy. Bldg., Baton Rouge, BRIDGE,

Orleans Parish—four lane, high level fixed bridge at Paris Rd., 135 ft. clearance, 500 ft. horizontal clearance over Tidewater Channel, serve as link in State Hy. No. 47, New Orleans. **$12,270,000.**

STREETS AND ROADS

▲ **LOUISIANA**—State Hy. Dpt., Hy. Bldg., Baton Rouge, ROAD,

Orleans Parish—Parish Rd. converted into 4 lane between Chef Menteur and St. Bernard Highways, State Hy. No. 47. **$4,000,000.** Bids sometime in 1962.

EARTHWORK, WATERWAYS

▲† **Alabama and Georgia**—U. S. Eng., 2301 Grant St., Mobile, Ala., COLUMBIA LOCK AND DAM, Chattahoochee River, **$4,700,000** (appropriated).

▲† **Alabama and Georgia**—U. S. Eng., 2301 Grant St., Mobile, Ala., Walter F. George (Fort Gaines) LOCK and DAM, Chahachooch River, **$15,600,000** (appropriated). CD 9/28/59.

▲† **Alabama**—U. S. Eng., 2301 Grant St., Mobile, Claiborne LOCK and DAM, Alabama River, $75,000 (appropriated planning). (Total Cost **$14,000,000**). CD 11/24/43.

▲† **Alabama**—U. S. Eng., 2301 Grant St., Mobile, Millers Ferry LOCK and DAM, Alabama River, $375,000 (appropriated planning). (Total cost **$41,000,000**). CD 11/24/43.

▲† **Arkansas**—U. S. Eng., Gay Bldg., Little Rock, Greers Ferry RESERVOIR, Little Red River, **$12,500,000** (appropriated). CD 9/20/60.

▲† **Arkansas**—U. S. Eng., Gay Bldg., Little Rock, Dardanelle Lock and Dam, Arkansas River, **$9,000,000** (appropriated). CD 9/20/60.

▲† **Arkansas**—U. S. Eng., Gay Bldg., Little Rock, Beaver RESERVOIR, White River, Eureka Springs, **$9,500,000** (appropriated).

▲† **California**—U. S. Eng., 1209 8 St., Sacramento Terminus RESERVOIR. **$3,288,000** (appropriated). CD 9/20/60.

▲† **California**—U. S. Eng., 1209 8 St., Sacramento, Black Butte RESERVOIR, Stoney Creek, Sacramento River. **$4,300,000** (appropriated). CD 9/20/60.

▲ **California**—State Dpt. Water Resources, 1120 N. St., Sacramento, 600,000 kw. initial capacity UNDERGROUND POWER PLANT, Oroville Dam, Feather River. Over **$5,000,000.** Bechtel Corp., 200 Bush St., San Francisco, consult. engrs. CD 9/20/55.

▲† **California**—U. S. Eng., 751 S. Figueroa St., Los Angeles, FLOOD CONTROL, Los Angeles County Drainage Area. **$16,000,000** (appropriated). CD 9/20/60.

▲† **California**—U. S. Eng., 1209 8 St., Sacramento, New Hogan RESERVOIR, Calaveras River. **$6,000,000** (appropriated).

▲† **Florida**—U. S. Eng., 575 Riverside Ave., Jacksonville, FLOOD CONTROL, Central and Southern Florida, **$13,750,000** (appropriated).

▲† **Georgia-South Carolina** — U. S. Eng., 200 E. St. Julian St., Savannah, Ga., Hartwell Reservoir, **$10,000,000** (appropriated). CD 9/22/60.

(Continued on page 111)

CUT WATER SUPPLY COSTS with REDA Submergible PUMPS

. . . and still obtain maximum water supply and maximum pressure for ALL your water needs. Here's Why:

1. QUALITY CRAFTSMANSHIP . . . Yet production line cost . . . A complete line of 2-pole and 4-pole models to meet operating heads and capacities required. Both electric, submergible motor and pump are REDA manufactured.

2. Oil lubricated motors require less power per H.P. PROVIDE MORE WATER PER DOLLAR than comparable units.

3. Low Installation and Operating Cost. No special piping needed, no drive shafts, rods, belts or gears or costly foundations are required. Operation is completely automatic with minimum controls required.

PUMP TYPE	UNIT O. D.	DESIGN CAPACITY GPM	DESIGN LIFT HEAD IN FEET	
			MAXIMUM	MINIMUM
D-47E	6″	55	2000	200
G-70E	6″	72	5400	180
G-120A	6″	110	3500	105
G-160	6″	150	2750	82
I-200	8″	210	2000	54
FR-300	8″	325	1250	54
J-400	8″	480	780	60

PUMP TYPE	UNIT O. D.	DESIGN CAPACITY GPM	DESIGN LIFT HEAD IN FEET	
			MAXIMUM	MINIMUM
GB-600	10″	600	600	60
KG-725	10″	800	490	69
N-500	10″	425	1100	30
N-750	11″	(c)600*	1000	30
		(a)700		
P-1000	12″	1200	1000	46
R-1500	14″	1800	700	65
T-2000	16″	2250	600	85

*(c) and (a) designate impeller cut within the same pump type.

Models Available from ⅓ to over 300 H.P. Call or Write for Industrial Bulletin R-432 and more complete information.

REDA PUMP COMPANY / BARTLESVILLE, OKLAHOMA

SIGN OF QUALITY SUBMERGIBLE REDA PUMPS

Manufacturer of Submergible, Electric Motors and Pumps for over 40 years. Pumps for Oil, Brine, Water, Gasoline, Jet Fuel, Chemicals, LPG

PHONE FE 6-7900

STEEL CONSTRUCTION IN AN 8-STORY APARTMENT BUILDING? YES AND IT SAVED $80,000

For the builders of new Hinman House in Evanston, Illinois, steel offered exceptional flexibility of design and a direct saving of $80,000 in construction costs. The 8-story building has 80 deluxe apartments. Typical floors are 68′ x 165′ and cubic footage totals 1,020,000.

"We saved in many ways," says Mr. Roy Schoenbrod, the architect. "Designed and bid both for steel and for concrete, the steel bid proved to be decidedly less expensive. What's more, during construction we observed that steel construction made the job easier for the pipe trades such as heating, air-conditioning, conduits and plumbing. Work went faster and labor costs were reduced considerably. This was our first experience with steel on a building of this size, but now that we've seen what it can do, we'll think of steel first from now on."

Use Steel for Modern Construction

STEEL CONSTRUCTION OFFERS design flexibility

. . . freeing the architect and engineer from patterns of the past . . . allowing unlimited play to creative imagination. In the practical solution of space design, large column-free areas are easily achieved. Cellular floors can be tack-welded to beams and girders providing built-in space-saving raceways for present and future power, phone and signal lines.

high strength with low weight

. . . reducing foundation costs due to excessive dead load . . . reducing floor heights which in turn save considerably on exterior wall surfaces while reducing the overall cubage required for the air-conditioning load.

and economy

. . . savings readily apparent when steel bids are compared with material other than steel. What's more such savings accrue regardless of size of building—from horizontally structured apartment houses or hospitals to vertically-reaching hotels or office buildings. Earlier occupancy, interest savings on construction loans, lower labor costs, all contribute to make steel by far your best actual and potential value for every construction dollar.

INLAND®

INLAND STEEL COMPANY

30 West Monroe Street • Chicago 3, Illinois

Wide Flange Beams · Steel Plates · Bearing Piles and Steel Sheet Piling · Ti-Co® Galvanized Sheets · 4-Way® Safety Plate · Enameling Iron · Sub-Purlins

(Continued from page 109)

▲† **Illinois**—U. S. Eng., 420 Locust St., St. Louis, Mo., Xarlyle RESERVOIR, Kaskaskia River. **$3,500,000,** (appropriated). CD 9/26/58.

▲† **Illinois**—U.S. Eng., Clock Tower Bldg., Rock Island FLOOD CONTROL, Sny Basin, $1,000,000 (appropriated), **(Total $4,000,000).**

▲† **Illinois**—U.S. Eng., 200 Bank Dr., Chicago, Part I, CALUMET SAG CHANNEL MODIFICATION, Illinois Waterway, **$5,000,000** (appropriated). CD 9/29/59.

▲† **Iowa-Nebraska** — U.S. Eng., 1709 Jackson St., Omaha, Neb. CHANNEL STABILIZATION, Missouri River, Sioux City, Iowa to Omaha, Neb., **$5,600,000** (appropriated).

▲† **Iowa**—U.S. Eng., Clock Tower Bldg., Rock Island, Ill., FLOOD CONTROL, Little Sioux River, **$2,700,000,** (appropriated). CD 10/3/60.

▲† **Iowa**—U.S. Eng., Clock Tower Bldg., Rock Island, Ill., RED ROCK RESERVOIR, Des Moines River, **$6,500,000,** (appropriated). CD 1/2/49.

▲† **Kansas**—U.S. Eng., 1800 Federal Office Bldg., Kansas City 6, Mo., Fort Scott RESERVOIR, Marmaton River. **$10,000** (appropriated planning). (Total **$16,000,000).**

▲† **Kansas**—U. S. Eng., 1800 Federal Office Bldg., Kansas City 6, Mo., MELVERN RESERVOIR, Osage River (Marais de Cygnes). $75,000 (appropriated planning). (Total **$20,000,000).**

▲† **Kansas**—U.S. Eng., 1800 Federal Office Bldg., Kansas City 6, Mo., FLOOD CONTROL, Kansas River, Topeka. **$2,400,000** (appropriated). CD 9/20/60.

▲† **Kansas**—U. S. Eng., Box 61, Tulsa, Okla., Council Grove RESERVOIR, Grand (Neosho) River. **$3,600,000** (appropriated).

▲† **Kansas**—U. S. Eng., 1800 Federal Office Bldg., Kansas City 6, Mo., Wilson RESERVOIR, Saline River. **$3,200,000** (appropriated). CD 9/29/59.

▲† **Kansas**—U. S. Eng., 1800 Federal Office Bldg., Kansas City, Zone 6, Mo., Pomona RESERVOIR, One Hundred Ten Mill Creek. **$4,800,000** (appropriated). CD 9/29/59.

▲† **Kansas** — U. S. Eng., 1800 Federal Office Bldg., Kansas City 6, Mo., John Redmond (Strawn) RESERVOIR, Grand River. **$6,700,000** (appropriated). CD 1/15/53.

▲† **Kansas** — U. S. Eng., 1800 Federal Office Bldg., Kansas City 6, Mo., Milford RESERVOIR, Republican River. **$2,500,000** (appropriated).

▲† **Kansas** — U. S. Eng., 1800 Federal Office Bldg., Kansas City 6, Mo., Tuttle Creek RESERVOIR, Big Blue River. **$5,000,000** (appropriated). CD 9/20/60.

▲† **Kentucky and Indiana**—U. S. Eng., P.O. Box 59, Louisville, Ky., McAlpine LOCKS and DAM. **$5,500,000** (appropriated). CD 9/20/60.

▲† **Kentucky and Indiana**—U. S. Eng., 830 W. Broadway, Louisville, Ky., Markland LOCKS and DAM, Ohio River. **$13,700,000** (appropriated). CD 12/27/55.

▲† **Kentucky and Ohio** — U. S. Eng., P.O. Box 59, Louisville 1, Ky., Captain Anthony Meldahl LOCKS and DAM, Ohio River. **$17,500,000** (appropriated).

▲† **Kentucky and Tennessee**—U. S. Eng., 306 Federal Office Bldg., Nashville, Tenn., Barkley DAM (Lower Cumberland LOCK and DAM). **$22,000,000** (appropriated). CD 9/21/60.

▲† **Kentucky** — U. S. Eng., P.O. Box 59, Louisville, Zone 1, Nolin RESERVOIR, Nolan River, Edmonson Co. **$7,200,000** (appropriated).

▲† **Kentucky** — U. S. Eng., P.O. Box 59, Louisville, Zone 1, No. 2 BARREN RESERVOIR, Barren River. **$4,500,000** (appropriated).

▲† **Louisiana**—U.S. Eng., foot Prytania St., New Orleans, IMPROVING Mississippi River, Gulf Outlet, **$8,500,000,** (appropriated).

▲† **Louisiana**—U.S. Eng., foot Prytania St., New Orleans, IMPROVING Mississippi River, Baton Rouge to Gulf, **$2,500,000** (appropriated).

▲† **Maryland**—U.S. Eng., P.O. Box 1715, Baltimore, Zone 3, Baltimore HARBOR and CHANNELS, **$5,000,000,** (appropriated). CD 9/26/58.

▲† **Michigan**—U.S. Eng., P.O. Box 1027, Detroit, Zone 31, IMPROVING Great Lakes CONNECTING CHANNELS. **$19,100,000** (appropriated). CD 9/20/60.

▲† **Michigan**—U.S. Eng., 1101 Washington Blvd., Detroit, Zone 26, St. Mary's River, new POE LOCK. **$4,500,000** (appropriated). CD 10/17/60.

▲† **Minnesota**—U. S. Eng., U. S. Post Office & Custom House, 180 E. Kellogg Blvd., St. Paul, Zone 1, St. Anthony Falls EXTENSION, Mississippi River. **$6,000,000** (appropriated). CD 9/21/60.

▲† **Missouri**—U. S. Eng., 420 Locust St., St. Louis, Zone 2, FLOOD CONTROL, St. Louis, **$8,500,000** (appropriated).

▲† **New Hampshire**—U.S. Eng., 424 Trapelo Rd., Waltham, Mass., HOPKINTON-EVERETT RESERVOIRS, Contoocook and Piscataquog Rivers, **$6,200,000** (appropriated). CD 9/21/60.

▲† **New Mexico**—U.S. Eng., P.O. Box 1538, Albuquerque, ABIQUIU RESERVOIR, Rio Chama near Espanola, **$5,458,000** (appropriated). CD 9/21/60.

▲† **New Mexico**—U.S. Eng., P.O. Box 1538, Albuquerque, TWO RIVERS RESERVOIR, Rio Hondo, near Roswell, **$3,000,000** (appropriated). CD 9/21/60.

▲† **New York**—U.S. Eng., 111 East 16 St., New York, Zone 3, DREDGING Hudson River, New York to Albany, **$5,000,000** (appropriated). CD 11/24/59.

▲† **Ohio and West Virginia**—U. S. Eng., 925 New Federal Bldg., Pittsburgh, Pa., PIKE ISLAND LOCKS and DAM, Ohio River, **$14,600,000** (appropriated). CD 9/29/60.

▲† **Ohio**—U. S. Eng., 925 New Federal Bldg., Pittsburgh 19, Pa., WEST BRANCH MAHONING RIVER RESERVOIR, **$2,600,000** (appropriated). CD 9/26/58.

▲† **Oklahoma**—U. S. Eng., Box 61, Tulsa, SHORT MOUNTAIN LOCK and DAM Arkansas River, $250,000 (appropriated for planning). (Total **$95,000,000).**

▲† **Oklahoma**—U. S. Eng., Box 61, Tulsa, BROKEN BOW RESERVOIR, Mountain Fork River, $1,000,000 (appropriated). (Total **$14,000,000**). CD 9/30/60.

▲† **Oklahoma**—U.S. Eng., P.O. Box 61, Tulsa, Eufaula RESERVOIR Canadian River, **$28,000,000** (appropriated). CD 9/30/60.

▲† **Oklahoma**—U. S. Eng., Box 61, Tulsa, KEYSTONE RESERVOR, Arkansas River, **$27,500,000** (appropriated). CD 9/30/60.

▲† **Oregon and Washington**—U. S. Eng., City County Airport, Walla Walla, Wash., John Dam LOCK and DAM **$31,000,000** (appropriated). CD 9/3060.

▲† **Oregon**—U. S. Eng., 628 Pittock Block, Portland, COUGAR RESERVOIR, South Fork McKenzie River, **$12,000,000** (appropriated). CD 930/60.

▲† **Oregon**—U. S. Eng., Pittock Block, Portland, GREEN PETER RESERVOIR, Middle Santiam River, **$6,000,000** (appropriated). CD 9/23/58.

▲† **Pennsylvania**—U. S. Eng., 925 New Federal Bldg., Pittsburgh, SHENANGO RIVER RESERVOIR, **$7,000,000** (appropriated).

▲† **Pennsylvania**—U. S. Eng., 925 New Federal Bldg., Pittsburgh, Zone 19, ALLEGHENY RIVER RESERVOIR, near Kinzua, **$15,000,000** (appropriated).

▲† **Pennsylvania**—U. S. Eng., 925 New Federal Bldg., Pittsburgh, MAXWELL LOCKS and DAM, Monongahela River, **$9,300,000** (appropriated).

▲† **Rhode Island**—U. S. Eng., 424 Trapelo Rd., Waltham, Mass., FOX POINT BARRIER, **$3,200,000** (appropriated). CD 1/16/61.

▲† **South Dakota**—U. S. Eng., 6012 U. S. Post Office & Court House, Omaha 2, Neb., OAHE RESERVOIR, Missouri River. **$40,000,000** (appropriated). CD 9/30/60.

▲† **Texas**—U. S. Eng., P.O. Box 1600, Fort Worth, WACO RESERVOR, Bosque River. **$8,500,000** (appropriated).

▲† **Texas**—U. S. Eng., P.O. Box 1600, Fort Worth, CANYON RESERVOR, Guadalupe River. **$3,000,000** (appropriated). CD 9/22/60.

▲† **Texas**—U. S. Eng., P.O. Box 1600, Fort Worth, SAN ANTONIO CHANNEL, **$2,400,000** (appropriated). CD 9/22/60.

▲† **Texas**—U. S. Eng., P.O. Box 1600, Fort Worth, PROCTOR RESERVOIR, Leon River, **$4,500,000** (appropriated).

▲† **Texas**—U. S. Eng., P.O. Box 1600, Fort Worth, NAVARO MILLS RESERVOIR, Richland Creek, **$3,500,000** (appropriated). CD 9/22/60.

▲† **Texas**—U. S. Eng., P.O. Box 1600, Fort Worth, McGEE BEND DAM, **$9,600,000** (appropriated). CD 9/22/60.

▲† **Texas**—U. S. Eng., P.O. Box 1229, Galveston, BEND EASING and WIDENING to 36 ft. depth only, Phase I, Houston Ship Channel, **$3,000,000** (appropriated). CD 9/26/58.

▲† **Texas**—U. S. Eng., P.O. Box 1600, Fort Worth, CHANNEL to Port Mansfield, **$2,639,000** (appropriated); Guadalupe River Channel to Victoria, **$900,000** (appropriated); West Colorado River Lock, east gate, minor rehabilitation, (**$180,000** appropriated).

▲† **Virginia**—U. S. Eng., 502 8th St., Huntington 1, W. Va., John W. Flannagan RESERVOIR, Pond River. **$4,200,000** (appropriated).

▲† **Washington**—U. S. Eng., City-County Airport, Walla Walla, LOWER MONUMENTAL LOCK and DAM, Snake River, **$8,000,000.**

▲† **Washington**—U. S. Eng., 1519 S. Alaskan Way, Seattle, Zone 4, HOWARD A. HANSON (Eagle Gorge) RESERVOIR, **$4,100,000** (appropriated). CD 11/13/57.

▲† **Washington**—U. S. Eng., City-County Airport, Walla Walla, ICE HARBOR LOCK and DAM, Columbia River, **$7,200,000** (appropriated). CD 9/29/59.

▲† **Washington**—U. S. Eng., Portland, Ore., LOWER GRANITE LOCK and DAM, **$400,000** (appropriated planning). (Total **$140,000,000.**)

▲† **West Virginia**—U. S. Eng., 502 8th St., Huntington, Zone 1, SUMMERSVILLE RESERVOIR, Gauley River, **$9,000,000** (appropriated).

▲† **West Virginia**—U. S. Eng., 925 New Federal Bldg., Pittsburgh 19, Pa., OPEKISKA LOCK and DAM, Monongahela River, **$3,000,000** (appropriated).

▲ **Manitoba**—Province of Manitoba, Winnipeg, Man., and Federal Govt. of Canada, Ottawa, Ont., EXCAVATION 100,000,000 cu. yd. 32 mi. FLOODWAY from St. Norbert to Lockport around Greater Winnipeg (7 year program) **$60,000,000.** Bids 1962

AIRPORTS

▲† **Fla., Cocoa**—U. S. Eng., 575 Riverside Ave., Jacksonville, BUILDING, UTILITIES, Cape Canaveral, Air Force Missile Test Center, Patrick Air Force Base, **$8,541,000** (appropriated).

UNCLASSIFIED

† **Missouri**—National Park Service, Dpt. Interior, 19 and C Sts. N.W., Wash. 25, D. C., GATEWAY ARCH and VISITOR CENTER, **$7,495,997** (appropriated); north and south OVERLOOK BLDGS. and WALLS, **$336,961** (appropriated); SITE WORK. **$548,042** (appropriated); UTILITIES, **$549,825** (appropriated); Archeological and Historical RESEARCH and EXHIBITS,

$477,750 (appropriated, Jefferson National Expansion Memorial. CD 7/18/60 under Mo., St. Louis.

▲ **N. Y., Flushing**—E. I. DuPont De Nemours & Co., DuPont Bldg., Wilmington, Del., plans by Voorhees Walker Smith Smith & Haines, 101 Park Ave., New York, Zone 17, EXHIBITION PAVILION, World's Fair. **$3,000,000.** Constr. Summer 1962. CD 7/12/61.

▲ **N. Y., Flushing**—Travelers Insurance Co., 700 Main St., Hartford, Conn., plans by Kahn & Jacobs, 2 Park Ave., New York, Zone 16, 50,000 sq. ft. EXHIBITION PAVILION, World's Fair Exhibit. **$3,000,000.** Walter Darwin Teague, 415 Madison Ave., New York, designer. Constr. Summer 1962. CD 7/12/61.

▲ **Oklahoma**—Oklahoma Lake Redevelopment Auth., State Capitol, Oklahoma City, Zone 5, two RECREATION CENTERS. Eufaula Dam Lake, incl. lodge, restaurant, convention hall, golf course, McIntosh, Okmulgee, Pittsburg and Haskell Counties. **$7,668,700.**

▲ **Va., Norfolk**—Norfolk Western Railway Co., 8 North Jefferson St., Roanoke, ENLARGING LAMBERT's POINT PIER. $6,000,000. CD 12/5/60.

PUBLIC BUILDINGS

▲ **Ala, Huntsville**—State Building Comn., Montgomery, **$3,000,000** bond election Dec. 15, RESEARCH INSTITUTE for Redstone Arsenal research program to be administered by University of Alabama Extension Center. CD 6/29/59.

▲ **Del., Dover**—Dover Special School Dist., Delaware Ave., and Delaware State Bd. Educ., bond referendum Oct. 14, HIGH SCHOOL. **$3,000,000.** Walter Carlson, 1014 Delaware Ave., Wilmington, archt. CD 12/1/60.

▲ **Ill., Chicago**—Chicago Housing Auth., 608 S. Dearborn Sts., Zone 5, 480 unit HOUSING for ELDERLY, Madison and Paulina Sts., **$5,700,000;** 200 unit HOUSING for ELDERLY, Broadway and Ardmore Sts., **$2,400,000;** 192 unit HOUSING for ELDERLY, 31st and Wentworth Sts., **$2,300,000;** 91 unit HOUSING for ELDERLY, 5th and Millard Sts., **$1,100,000.**

▲ **Ill., Wheaton**—Wheaton Community High School, voted bonds Sept. 23, HIGH SCHOOL, Gary and Geneva Rds. **$3,285,000.** CD 9/13/61.

▲ **La., New Orleans**—Louisiana State University School of Medicine, 1542 Tulane Ave., two 5 story WINGS, Medical Research Bldg., 1642 Tulane Ave., **$1,474,938;** 10 story DORMITORY for Medical and Nursing Students, Perdido St. from S. Roman to Boliver Sts. **$2,650,000.**

▲ **Mass., Worcester**—City, School Dpt., City Hall, plans by C. W. Buckley, Inc., 311 Main St., HIGH SCHOOL, Highland St. **$3,000,000.** Bids early 1962.

▲ **Neb., Lincoln**—University of Nebraska, Administration Bldg., plans by Davis & Wilson, 226 Stuart Bldg., DORMITORY PROJ. HOUSING, 960 students; two 13 story RESIDENCE HALLS, two story FOOD-SERVICE BLDG., **$4,000,000.** Bids Winter 1961-2. CD 7/15/57.

▲ **N. J., Cranford**—Bd. Educ. Cranford Twp., 210 Miln St., voted referendum bonds and project Sept. 28, JUNIOR HIGH SCHOOL, off Orange Ave., **$2,350,000;** JUNIOR HIGH SCHOOL off Hillside Ave., **$2,350,000.** Epple & Seaman, 901 Broad St., Newark, archts. CD 8/25/61.

▲ **N. J., Trenton**—Bd. Educ., Lawrence Twp., 2455 Princeton Pike, HIGH SCHOOL. **$3,000,000.**

▲ **O., Columbus**—Columbus Metropolitan Housing Auth., 425 W. Rich St., zone 22, plans by Sims, Cornelius & Schooley, 2901 N. High St., 852 unit APARTMENTS, Leonard Ave., east of St. Clair Ave. **$7,500,000.** BA Spring 1962. CD 3/21/61.

▲† **Okla., Fort Sill**—U. S. Eng., P.O. Box 1600, Fort Worth, Tex., BUILDINGS, UTILITIES. **$9,247,000** (appropriated).

▲ **Utah, American Fork**—Alpine School Dist., American Fork, **$2,500,000** bond election Nov. 7, JUNIOR HIGH SCHOOL, Crem, **$1,600,000;** COMPLETING Srera Park ELEMENTARY SCHOOL, **$400,000.** CD 1/27/59.

▲ **Alta., Edmonton**—Edmonton P. School Bd., 10733 101st St., Plans by Rule, Wynn & Rule, 11422 Jasper Ave., ACADEMIC-ADMINISTRATION UNIT for VOCATIONAL HIGH SCHOOL; plans by Aberdeen & Groves, 8411 109th St., SHOP WING for VOCATIONAL HIGH SCHOOL; plans by John McIntosh, 420 Baker Bldg., BOILER ROOM for VOCATIONAL HIGH SCHOOL. **$2,650,000.**

▲ **Ont., London**—University of Western Ontario, plans by O. Roy Moore & Co., 260 Dundas St., four 3 story, bsmnt. 100x150 ft., rein.-con. frame, stone MENS RESIDENCE WINGS. **$2,500,000.**

▲ **Ont., Ottawa**—Dpt. P. Wks., Sir Charles Tupper Bldg., Riverside Dr., OFFICE BLDG. for Northern Affairs and National Resources & Forestry Dpt., behind Clifford Park Memorial Centre, Confederation Heights. **$6,000,000.**

COMMERCIAL BUILDINGS

▲ **Calif., Santa Cruz**—Barrett Homes, Inc., sub. Barrett Constr. Co., 1800 Evans Ave., San Francisco, plans by Donal Haridson & Assocs., Richmond, APARTMENT HOUSE DEVELOPMENT, San Lorenzo Park. **$4,500,000.** Bids for first phase after Oct. 15.

▲ **D. C., Wash.**—Pan American Health Organization, 1501 New Hampshire Ave. N.W., plans by Roman Fresnedo Siri, Montevideo, Uruguay, HEADQUARTERS BLDG., Virginia Ave., E. 22nd and 23rd Sts. N.W. **$4,500,000.** CD 3/29/60.

▲ **Ill., Chicago**—Reuben C. Musikantow, Glen W. Snow & Edward L. Walters, c/o Draper & Kramer, Inc., agent, 30 W. Monroe St., plans by Lowenbert & Lowenbert, 120 LaSalle St., Zone 3, 727 unit APARTMENT, 4800 South Shore Dr. **$15,000,000.** Bids early 1962.

▲ **Ill., Elmhurst**—Wheaton Medical Arts Bldg. Corp., 303 Naperville Rd., Wheaton, 10 story MOTEL, North Ave. and Illinois Toll Rd. **$2,500,000.**

▲ **Ind., Fort Wayne**—Trustees, Taylor University, Upland, COLLEGE BUILDINGS, US 24, 3 mi. south of here. **$5,000,000.** Louis C. Kingscott & Assocs., Inc., 401 E. Hanna Ave., Indianapolis, archt. CD 6/16/55, under Ind., Upland, as project location. Site changed.

▲ **La., Arabi**—Johness Realty, Inc., Whitney Bldg., New Orleans, plans by Curtis & Davis, 2475 Canal St., New Orleans, 150,000 sq. ft. SHOPPING CENTER, 1,500 car-parking, St. Claude Ave. **$3,000,000.** Bids early 1962.

▲ **La., New Orleans**—Johness Realty Co., 8130 Palmetto, plans by Curtis & Davis, 2475 Canal St., 900,000 sq. ft. SHOPPING CENTER, Claude, Mehle, Hernandez and Royal Sts. **$3,000,000.**

▲ **N. J., Short Hills**—Congregation B'Nai Jeshurun, High St. and Waverly Ave., Newark, plans by Marcel Breuer & Assocs., 201 East 57th St., New York, N. Y., TEMPLE and RELIGIOUS CENTER. **$3,500,000.** Paul Weidlinger, 770 Lexington Ave., New York, N. Y., struc. engr.

▲ **N. Y., New York**—Glickman Corp., 501 5 Ave., Zone 17, plans by Schuman & Lichtenstein, 360 Lexington Ave., Zone 17, 16 story APARTMENT, 1056-65 Lexington Ave. northwest corner E. 75 St. **$2,500,000.** Mayer Assocs., 110 E. 30 St., Zone 16, mech. engrs. Jerome Felcher, 20 E. 30 St., Zone 16, struct. engr. CD 9/5/61.

▲ **N. Y., New York**—Home Insurance Co., 59 Maiden Lane, Zone 38, plans by Alfred Easton Poor, 400 Park Ave., Zone 22, 44 story OFFICE, west side William St. between Maiden Lane and John St. **$20,000,000.**

▲ **N. Y., New York**—Safeway Properties, Inc., 274 Madison Ave., New York, N. Y., plans by Herbert Fleischer, archt.-engr., 254 5 Ave., Zone 1, 19 story APARTMEINT-HOTEL and GARAGE, 300-04 W. 55 St. **$4,125,000.** Bids Spring 1962.

▲ **N. Y., Niagara Falls**—Niagara Parkway, Inc., c/o Harold A. Dutch, 80 W. Genesee, Buffalo, plans by

CHROME CLAD®
TAPE
STEEL
THE LUFKIN RULE Co.
SAGINAW, MICH. U.S.A.

Gritty mud would mar the markings on most tapes!

This Chrome Clad® tape is Lufkin's 50-foot ANCHOR model. It *looks* quality in its hand-sewn leather case . . . it *is* quality.

A special kind of electroplating protects the tape from the damage of mud, sand and grit. The bold black markings are bonded to the steel base . . . protected by layer after layer of electroplating . . . topped by a final coat of tough chromium. Glare free, corrosion resistant, longer lasting—this is the tape preferred by every professional. Available with markings in feet, tenths and hundredths.

Measure for measure, the finest made...

LUFKIN

SAGINAW, MICHIGAN

Aaron Colish, Architects Bldg., Phila., Pa., 13 story APARTMENT, 157 Buffalo Ave. **$3,000,000.**

▲ **N. Y., Rochester**—Security Trust Co., 103 Main St. E., 80,000 sq. ft. V shaped BANK and OFFICE, Main St. and East Ave. **$3,000,000-$4,000,000.**

▲ **N. Y., White Plains**—General Foods Corp., 250 North St., plans by Voorhees, Walker, Smith, Smith & Haines, 101 Park Ave., New York, Zone 17, 5 story, 190,000 sq. ft. OFFICE (North Bldg.), north end of existing facilities. **$6,000,000.** Bids early in November.

▲ **O., Cleveland**—Vinewood Park Inc., c-o Irving Fishman 5299 State Rd., Zone 34, plans by Andrew J. Burin, 21139 Lorain Rd., Zone 26, 400 HOMES, development on Sprague Rd., **$6,000,000;** 375 garden development APARTMENTS, Sprague Rd., **$4,000,000;** 90,000 sq. ft. SHOPPING CENTER, Sprague Rd., ½ mi. west of Columbia, **$1,000,000.** BA Spring 1962.

▲ **Ore., Portland**—Pacific Telephone Northwest, 509 SW Oak St., plans by Stanton, Boles, Maguire & Church, 208 SW Stark St., OFFICE. **$3,000,000.** BA early 1962.

▲ **Pa., Pittsburgh**—1000 Grandview Avenue, (Lhormer Associates, Inc.) c/o Tasso G. Katselas, archt., 2504 5th Ave., Pittsburgh, 16 story, co-operative APARTMENT, Mount Washington Roadway and Grandview Ave., Mount Washington. **$3,000,000.** CD 7/15/59.

▲ **S. C., Columbia**—South Carolina Baptist Hospital 1515 Marion St., plans by Jackson & Miller, 1226 Bull St., 8 story, HOSPITAL ADDN. Over **$5,000,000.** Johnson & King, 1225 Picken St., struct. engrs. CD 6/9/61.

▲ **Tex., Houston**—7200 Main Corp., Dempsey J. Prappas, 2820 Linkwood St., 24 story, high-rise APARTMENT, underground parking, swimming pool, 7200 Blk. Main St., 5 acre tract. **$13,500,000.**

▲ **Ont., Fort William**—Edgewater Land Development Ltd., Fort William, 289 DWELLINGS, 24 acre site north of Arthur St., between Stanley and Mountain Sts. **$5,000,000.**

INDUSTRIAL BUILDINGS

▲ **Ill., Wheaton**—Container Corp., 38 S. Dearborn St., Chicago, Zone 3, plans by Skidmore Owings & Merrill, 30 N. Monroe St., Chicago, Zone 3, 340,000 sq. ft. folding cartons FACTORY, OFFICE. **$5,750,000.** Bids soon.

▲ **Me., Millinocket**—Great Northern Paper Co., PLANT to produce coated paper. **$5,000,000-$6,000,000.**

▲ **Md., Baltimore**—Atlantic Cement Co., Inc., subsidiary of Cerro Corp., 300 Park Ave., New York 22, N. Y., CEMENT STORAGE PLANT, WHARF, 16 STORAGE SILOS, 190 ft. high. **$3,000,000.**

▲ **Mont., Helena**—Permanente Cement Co., (sub. Henry J. Kaiser Co.), Kaiser Center, Oakland, Calif., CEMENT PLANT, near here. **$10,000,000.**

▲ **Wis., Green Bay** — Wisconsin Public Service Corp., 1029 North Marshall St., Milwaukee, Zone 2, ELECTRIC GENERATING PLANT ADDN., Pulliam Plant. **$20,000,000.** Pioneer, Service & Eng. Corp., 231 South La Salle St., Chicago, Ill., consult. engrs.

▲ **N. B., Newcastle**—New Brunswick Electric Power Comn., Fredericktown, 50,000 kw STEAM GENERATING PLANT, Newcastle Creek. **$10,000,000.** Constr. late 1962.

AMERICANS ABROAD

▲ **Australia, Geelong**—Ford Motor Co., The American Rd., Dearborn, Mich., U.S.A., PLANT EXPANSION and other facilities. **$22,400,000.**

▲ **Australia, Melbourne**—Ford Motor Co., The American Rd., Dearborn, Mich., U.S.A., PLANT EXPANSION and other facilities. **$11,200,000.**

▲ **Italy, Terni**—United State Steel Corp., 525 Wm. Penn Pl., Pittsburgh, Pa., U.S.A. and Terni-Societa per l'Industria e l'Elettricia, Terni, PLANT to produce stainless steel.

▲ **Spain, Sabinanigo**—Desarrollo Quimico Industrial S A, owned by E. I. du Pont Nemours & Co., Wilmington, Del., U.S.A and Energia E. Industrias Argonesas S A Madrid, Spain, PLANT to produce dithiocarbimate fungicide chemicals, near here.

LATIN AMERICA

▲ **Brazil, Rio de Janeiro**—Fabrica Nacional de Motores, Praca Naua 7, 14 andar, Rio de Janeiro, MOTOR VEHICLE PLANT ADDN. **$2,500,000.**

▲ **PERU**—Ministry of Development & P. Wks., Govt. Peru, Lima, ROAD,

31 mi. road from Munepata in High Sierra Region to Teresita in Apurimac River Valley, 4 meters wide, gravel surf. incl. 10 major bridges, 53 culverts and 218 cross drains. **$2,500,000.** Brown & Root, Inc., 4100 Clinton Dr., Box 3, Houston, Tex., U.S.A., consult. engr.

FOREIGN

▲ **Mexico, Tijuana** — Tijuana Junta de Mejores Materiales, CHANNEL and develop Tijuana River, **$15,000,000;** AQUEDUCT PROJ. for Tijuana, **$24,000,000.**

▲ **Rhodesia**—Rhodesian Iron & Steel Co., Salisbury, BLAST FURNACE, Redcliff, **$11,000,000;** BLAST FURNACE, RAILROAD SPUR and DEVELOPMENT, Town, Bukwe, **$20,000,000.**

For additional reports see CONSTRUCTION DAILY REPORTS SECTION

THE
BIG
BITE
THAT'S
JUST
RIGHT!

Hook an OWEN Clamshell Bucket to your crane and you're *sure* of superior performance and longer life. For OWEN Buckets have exclusive super-efficiency and long-lived features you won't find in ordinary clamshells.

For instance:

- Block and tackle type reeving
- One-piece head construction
- Recessed lips
- Single main shaft
- Riveted bowl assembly

For over half a century OWEN has been building clamshell buckets—tailored to meet the requirements of "men who move the earth the world over".

So team your crane to the bucket with the BIG BITE that's JUST RIGHT for every job!

Write today for the money-saving facts and figures.

the OWEN
BUCKET COMPANY
BREAKWATER AVENUE • CLEVELAND 2, OHIO
BRANCH OFFICES: New York • Philadelphia • Chicago • Berkeley, California • Fort Lauderdale, Florida

Bids—Low Bids—Contracts—Second Section

NEW ENGLAND

HEAVY CONSTRUCTION—BA

▲ **Mass., Holyoke**—BA 10/31—City, Bd. Water Comrs., City Hall, constr. 30 in. DISTRIBUTION MAIN from McLean Reservoir to Smith's Ferry and pipe line throughout city. $1,000,000. Tighe & Bond, Inc., Bowers and Pequot Sts., engr. CD 10/6/61.

BUILDINGS—BA

▲ **Conn., Fairfield** — BA 10/25 — Fairfield University, Barlow Rd., DORMITORY, Barlow Rd., $1,000,000. J. Gerald Phelan, 299 Washington Ave., Bridgeport, archt. Fletcher-Thompson, Inc., 299 Washington Ave., Bridgeport, engr. CD 1/26/61.

HEAVY CONSTRUCTION—LB & CA

▲ **MASSACHUSETTS**—Commonwealth Mass., Dpt. P. Wks., 100 Nashua St., Boston, BRIDGE,

United States Steel Co., 1420 Statler Bldg., Boston, Mass., CA **$12,495,820**, est. $12,258,00, steel superstructure of bridge over Taunton River. 1-195-3(35)11, Fall River-Somerset. BA 8/8. CD 8/10/61.

BUILDINGS—LB & CA

▲ **Fred I. Merrill, Inc.**, 187 Sawyer St., South Portland, Me., LB **$1,394,197**, est. $1,400,000 (7 bidders), HIGH SCHOOL, WATERVILLE, ME. City, Supt. Schools, Pleasant St., Waterville, Me. BA 10/5. CD 9/12/61.

▲ **John Capobianco**, 101 Tremont St., Boston, Mass., LB **$1,875,000**, est. $1,829,000, (12 bidders), Proj. U-59-4, Contr. 1, PHYSICS BLDG. ADDN., University of Massachusetts, AMHERST, MASS. Commonwealth Mass., Dpt. Educ., Div. Bldg. Constr., 38 Chauncy St., Boston, Mass. BA 10/6. CD 9/13/61.

Poley Abrams Corp., 45 Bartlett Crescent, Brookline, Mass., CA Approx. **$900,000**, Commonwealth MOTOR HOTEL, Kenmore Sq., 585 Commonwealth Ave., BOSTON, MASS. Bay State Motor Hotel Trust, c/o Salsberg & LeBlanc, archts., 318 Harvard St., Boston, Mass.

▲ **Westinghouse Elec. Corp.**, 3 Gateway Center, Pittsburgh, Pa., CA Est. **$25,000,000** GENERATOR for 346,000 kw Power Plant Addn., L St. Station, South Boston, BOSTON, MASS. Boston Edison Co., 182 Tremont St., Boston 12, Mass.

▲ **Jefferson Constr. Co.**, 75 First St., Cambridge, Mass., CA **$1,122,659**, HOUSING for the ELDERLY, three sites, SA Proj. Malden 667-3, MALDEN, MASS. City Housing Auth., 275 Newland St., Malden, Mass. BA 9/6. CD 9/11/61, under LB.

▲ **C. E. Zeiner & Sons, Inc.**, 4 Castlewood Rd., Avon, Conn., Owner Builds, **$1,482,000**, 57 HOUSES, Castlewood, Rte. 10, AVON, CONN.

▲ **Bonvicini Bldg. Co., Inc.**, 1500 S. Main St., Torrington, Conn., CA **$1,072,000**, Housatonic Valley Regional HIGH SCHOOL ADDN., FALLS VILLAGE, CONN. Regional School Dist. No. 1, Box 41, Canaan, Conn. BA 9/26/61. CD 9/29/61, under LB.

▲ **Wm. C. Woods**, Hickory Lane, North Madison, Madison, Conn., Owner Builds, **$1,250,000**, 125 HOUSES, Run Acre Farms, MADISIN, CONN. CD 9/8/61.

▲ **Horischak Realty, Inc.**, Morning Star Drive, Seymour, Conn., Owner Builds, **$2,098,500**, 150 HOUSES, Morning Star Terrace, off Skokoret Rd., SEYMOUR, CONN. CD 9/1/61.

▲ **George L. Hickey**, 13 Spring St., Stamford, Conn., LB **$1,031,890**, (6 bidders), Riverbank ELEMENTARY SCHOOL, STAMFORD, CONN. Bd. Educ., 151 Broad St., Stamford, Conn. BA 10/11/61. CD 9/26/61.

MIDDLE ATLANTIC

HEAVY CONSTRUCTION—BA

▲ **Md., Federaldsburg**—BA 11/13—Mayor and Council, 203 North Main St., proposed imprvts. to SANITARY SEWERAGE SYS., Sched. A, intercepting sewers, sewage lift and pumping stations, force mains, sewage treatment plant and outfall sewer; Sched. B, house connections and sewage metering stations, Proj. No. WPC-MD-21. Plans deposit $50. Clarke Gardner & Percy Sterling, Calvert and Bond Sts., Salisbury, consult. engrs. CD 3/4/48.

BUILDINGS—BA

▲ **N. J., Elizabeth**—BA 10/31—Thomas & Betts Co., Elizabeth Ave., 2 story, 80,000 sq. ft. rein.-con. PLANT ADDN. $1,000,000. Gordon Powers, 15 West 44th St., New York 36, N. Y., archt.

▲ **N. Y., Yonkers**—BA 10/31—Archdiocesan Bldg. Comn., 451 Madison Ave., New York, Zone 22, 3 and 4 story, 50,000 sq. ft. steel frame, brick DORMITORY, Elizabeth Seton College, N. Broadway. $1,000,000. Edward Fleagle, 20 S. Broadway, archt. Krey & Hunt, 292 Madison Ave., New York, Zone 17, mech. engrs. Throop & Feiden, 207 E. 37 St., New York, Zone 16, struct. engrs. CD 9/28/61.

▲ **N. Y., White Plains**—BA 11/8—General Foods Corp., 250 North St., (selected list bidders) 5 story, 190,000 sq. ft. OFFICE (North Bldg.) at north end of existing facilities. $6,000,000. Voorhees, Walker, Smith, Smith & Haines, 101 Park Ave., New York, Zone 17, archts. CD 10/5/61.

▲ **N. Y., Pelham**—BA 11/14—Town, Town Hall, HIGH SCHOOL ADDN. $1,075,000. CD 6/22/61, under LB.

BUILDINGS—SLC

▲ **N. J., West Paterson**—Kearfott Div. of General Precision Inc., 1150 McBride Ave., Little Falls, soon lets contract 76,000 sq. ft. ENGINEERING BLDG. ADDN., Plant No. 3. $1,000,000. Finne, Lyman & Finne, 1155 Magnolia Ave., Elizabeth archts. CD 9/5/61.

HEAVY CONSTRUCTION—LB & CA

▲ **C. E. Knowles**, Industrial Pl., Gowanda, N.Y. LB **$1,246,416.** TRUNK SEWER IMPRVT. Federal Proj. WPC N.Y. 89 and New York State Serial No. 3675, Div. A, overflow chambers, regulators, manholes, Hastings St. and Cliff Street Screen Chambers; The Hastings St. Siphon and Norton Street Outfall; Div. B, ventilation; Div. C, electrical equipment work; Div. D, plumbing, ROCHESTER, N. Y. City, Purchasing Agent, Rm. 36, City Hall, No. 20 South Fitzburgh St., Rochester, N.Y. BA 9/25. CD 9/1/61.

▲ **NEW JERSEY**—State Hy. Dpt., 1035 Parkway Ave., Trenton, Bids opened 10/11, ROAD,

Public Constructors, Inc., Erial Rd., Blenheim, Blackwood, N. J., LB **$3,630,006**, constr. interchange for Interstate Rte. 287 and Rte. 1, Metuchen Boro and Edison Twp., Middlesex Co. CD 9/15/61.

BUILDINGS—LB & CA

▲ **John W. Ryan Constr. Co.**, 11 W.42 St., New York 36, N. Y., CA **$1,000,000**, 2 story, bsmnt., 218 x 206 ft. Gardiner Manor SHOPPING CENTER, BAY SHORE, N. Y. B. Gertz, Inc., 162-10 Jamaica Ave. Jamaica, N. Y. Francis X. Gina Assocs., 219 E. 44 St., New York 17, N. Y., archts.

▲ **J. Rich Steers, Inc.**, 17 Battery Pl., New York 4, N. Y., CA general contract FDNS., DOCK and PILES, BULK OIL STORAGE DEPOT, Stage I, incl. docks, 4 banks, total capacity 320,000 gals., HASTINGS-ON-HUDSON, N. Y. Tappan Tank Terminal Inc., Hastings-on Hudson, N. Y., Total cost **$1,500,000**;

Chicago Bridge & Iron Co., 165 Broadway, New York 6, N. Y., CA four steel 320,000 gal. capacity TANKS (Hastings-on-Hudson, N. Y.);

Great Lakes Dredge & Dock Co., 17 Battery Pl., New York 4, N. Y., CA DREDGING for Docks (Hastings-on-Hudson, N. Y.);

Rowland Tompkins & Son, Inc., 50 Broadway, Hawthorne, N. Y., CA PIPE WORK (Hastings-on-Hudson, N. Y.).

S & D Constr. Co., 1203 Catherine St., Utica, N. Y., LB **$982,113**, JUNIOR-SENIOR HIGH SCHOOL and BUS GARAGE, HERKIMER, N. Y. Bd. Educ. West Canada Central School Dist. No. 2, Middleville, N. Y. BA 10/5. CD 9/19/61.

▲ **SIRE Plan Inc.**, 115 Chambers St., New York, N. Y., Owner Builds, **$3,000,000**, 7 story HOTEL, Ditmars Blvd. and Grand Central Parkway, JACKSON HEIGHTS, N. Y. Sirof & Siversten, 89-31 161 St., Jamaica, N. Y., archts. CD 10/24/60.

▲ **Caldi Realty Corp.**, 65 E. 55 St., New York 22, N. Y., Owner Builds, **$1,250,000**, 14 story, 87 x 102 ft., 94-unit APARTMENT, 138-144 E. 84 St., NEW YORK, N. Y. Leo Stillman, 332 E. 149 St., New York 51, N. Y., archt. Greenhut & Taffel, 114 E. 32 St., New York 16, N. Y., engrs.

▲ **Thompson-Starrett Constr. Co., Inc.**, 745 5 Ave., New York 19, N. Y., CA **$5,720,000**, one 10 story and one 15 story Wicham Terrace APARTMENT, 5.65 acres, Burke, Gunther, Givan and Bruner Aves., Bronx Boro, NEW YORK, N. Y. David Kamuman, 11 W. 42 St., New York 36, N. Y. (**Correction**-contractor). CD 3/28/61, under CA.

▲ **Kayfield Constr. Corp.**, 130 Cutter Mill Rd., Great Neck, N. Y., CA **$1,234,000**, general contract combined bid two GRADE SCHOOLS, Memorial Field and and Forest Field, OYSTER BAY, N. Y. Oyster Bay-East Norwich School Dist., E. Main St., Oyster Bay, N. Y. BA 8/24. CD 8/29/61, under LB.

▲ **Pickwick Bldg. Organization**, c/o Samuel Paul and Seymour Jarmul, archts., 59 E. 54 St., New York 22, N.Y. Owner builds **$1,250,000**, 2 story, V-shaped, 100 unit MOTEL, two swimming pools, 6 acre site Round Swamp Rd. and Long Island Expressway, PLAINVIEW, N.Y. CD 3/27/61.

▲ **Pearce & Pearce**, 900 Niagara Falls Blvd., Buffalo, N. Y., Owner Builds, **$1,200,000**, $600,000 first year (2 year program), 55 HOMES, Sweet Briar, TONAWANDA, N. Y.

▲ **Biltmore Constr. Co., Inc.**, 76 Inwood Ave., Portchester, N. Y., CA **$1,000,000**, 4 story OFFICE and 3 story GARAGE, Church St. and Hamilton Ave., WHITE PLAINS, N. Y. The Churchman Co., 9 West Prospect Ave., Mount Vernon, N. Y. BA 9/19. CD 9/5/61.

▲ **Elliott Bedanes**, Atlantic Rd., Franklin Twp., Somerset, N. J., Owner Builds, **$1,500,000**, 72 HOUSES, off Easton Ave., EDISON N. J. Rotwein & Blake, 1118 Stuyvesant Ave., Union, N. J., archts.

▲ **Edmund D. Doucett**, 495 Patten Ave., Long Branch, N. J., CA Est. **$1,250,000**, 40 HOUSES, between Manahasett Creek and Shrewsbury River, MONMOUTH BEACH, N. J. David Kaplus, 120 10th Ave., Belmar, N. J. Frank A. Amodio, 69 Broad St., Red Bank, N. J., archt.

▲ **Keith Jones Constr. Co.**, Myrtle Beach, S.C. CA Est. **$1,000,000.** Holiday Inn MOTEL, Rte. 1, across from Food Machinery and Chemical Plant, PRINCETON, N.J. Holidays Inns ,Inc., c/o Harvey Gordon & Assoc., archts., 904 20th St. N.W., Wash., D.C. CD 9/13/61.

▲ **Forest Park Improvement Co.**, 165 Mountain Ave., Somerville, N. J., Owner Builds, **$1,200,000**, GARDEN APARTMENTS, Dartmount Ave., Stanford Drive, Morgan Lane, SOMERVILLE, N. J. George Swiller, 478 East Tremont Ave., New York 57, N. Y., archt.

▲ **Joseph & Harry Wilf**, 99A Hillside Ave., Springfield, N. J., Owner Builds, **$1,000,000**, 50 HOUSES off Clifford Drive, WAYNE, N. J. H. B. Southern, 571 Hazelwood Ave., Rahway, N. J., archt.

▲ **Pine Homes, Inc.**, U.S. Hy. 46, Clifton, N. J., Owner Builds, **$3,000,000**, 200-unit GARDEN APARTMENT, Kinderkamack and Old Hook Rd., WESTWOOD, N. J. Eugene DeMartin, 483 Riverside Ave., Lyndhurst, N. J., archt. John A. Doolittle & Co., 89 Central Ave., Clifton, N. J., engrs.

▲ **L. F. Driscoll Co.** 32 W. Coulter, Phila., Pa., CA **$1,687,000**, general contract, Riddle MEMORIAL HOSPITAL, MEDIA, PA. Riddle Memorial Hospital, 5 W. Front St., Media, Pa. Grand total $2,639,300. CD 710/61, under LB;

Ross Electric Constr. Co., 106 Fairmount Ave., Phila., Pa., CA **$443,000**, electrical constr. for Riddle MEMORIAL HOSPITAL, (Media, Pa.);

Powerthern Corp., Narberth, Pa., CA **$509,300** ventilating and air-conditioning, constr. for Riddle MEMORIAL HOSPITAL, (Media, Pa.)

▲ **Frank A. D'Lauro Co.**, 218 Willow Grove Ave., Phila., Pa., CA **$1,000,000**, St. Mary's HALL, (Seminary) GYM, CHURCH, VILLANOVA, PA. Villanova University, Villanova, Pa. BA 8/31/61. CD 9/13/61, under LB under Augustinian Fathers, as owner.

▲ **Daniel J. Mac Michael**, 2505 Academy Ave., Holmes, Pa., Owner Builds, **$1,500,000**, RESIDENTIAL DEVELOPMENT, (168) S. Bailey Rd., WEST CHESTER, PA.

▲ **J. W. Bateson Co., Inc.**, 10130 Monroe Dr., Dallas, Tex., CA **$7,996,000**, Proj. MD-2-18, 758 units George B. Murphy HOUSING, BALTIMORE, MD. Baltimore Housing Auth., 905 Equitable Bldg., Baltimore 2, Md. BA 9/21. CD 9/25/61, under LB.

▲ **Henry A. Knott, Inc.**, 2406 Greenmount Ave., Baltimore, Md., LB **$2,493,000**, (7 bidders), Lansdowne SENIOR HIGH SCHOOL, TOWSON, MD. Baltimore Co. Bd. Educ., Aigburth Rd., Towson 4, Md. BA 10/10. CD 10/6/61.

▲ **George Hymen Constr.**, 1010 Vermont Ave. S.W., Wash. 5, D. C., CA **$2,017,000**, brick, concrete, block, limestone, steel Cumberland Hall DORMITORY and DINING HALL No. 2, COLLEGE PARK, MD. State, Dpt. P. Imprvs., 301 W. Preston St., Baltimore 1, Md. (**Correction**—contractor). CD 10/9/61, under CA.

▲ **Bechtel Corp.**, 220 Bush St., San Francisco, Calif., CA design and construct two unit 335,000 kv each GENERATING PLANT at Chalk Point, WEST RIVER, MD. Potomac Electric Power Co., 10 and E. Sts. N.W. Wash., D. C. Total est. **$105,000,000**, CD 8/18/60, under Md., Benedict;

Babcock & Wilcox Co., 161 E. 42 St., New York, N. Y., CA two BOILERS for Generating Plant, Chalk Point (West River, Md.);

General Electric Co., 1 River Rd., Schenectady, N. Y., CA TURBINES for Generating Plant, Chalk Point (West River, Md.).

▲ **Rupert Constr. Co.**, 3400 Lancaster Ave., Wilmington, Del., CA **$3,142,000**, Christiana HIGH SCHOOL BLDG., NEWARK, DEL. Newark Bd. Educ., Newark, Del. BA 9/27/61. CD 10/2/61, under LB.

SOUTH

HEAVY CONSTRUCTION—BA

▲† **N. C., Cherry Point**—BA 10/31—Dist. P. Wks. Office, 5th Naval Dist., US Naval Station, Norfolk, Va., UTILITY LINES EXTENSION, Marine Corps Air Station, Contract NBy 37096, Spec. 37096/61, Over $1,000,000. CD 9/7/61.

BUILDINGS—BA

▲ **Fla., Bradenton**—BA 10/30—Bd. Comrs. Manatee Co., County Courthouse, Manatee Veterans Memorial HOSPITAL ADDN. $1,200,000. Watson & Co., 3013 Horatio St., Tampa, archts. Ellerbe & Co., 333 Sibley St., St. Paul Minn., consult. engrs.-archts. CD 8/8/60.

▲ **Ala., Mobile**—BA 11/2—Bd. Comrs. Mobile Co., 504 Government St., E. R. Dickson SCHOOL ADDN. $1,000,000. Plans deposit $50. Starr Prolsdorfer & Smith, 951 Government St., archts.

▲ **Ky., Bowling Green**—BA 11/8—Bowling Green & Warren Co. Hospital Comm., constr. Bowling Green Warren County HOSPITAL ADDNS., $1,500,000. Otis & Grimes, Tyler Bldg., Louisville Zone 2, archts. Southern Engineering Co., 322 W. Jefferson St., Louisville Zone 2, engr. CD 6/23/61, under LB.

▲ **Ga., Athens**—BA 11/14—Bd. Regents, University System of Georgia, 244 Washington St., S.W. Atlanta, 3 story, 94,000 sq. ft. PHARMACY BUILDING, University of Georgia, $1,500,000. Plans deposit $50. CD 9/8/61, under LB.

HEAVY CONSTRUCTION—LB & CA

▲ **Richards & Associates**, Carrollton, Ga., and **Sumter Builders, Inc.**, E. Liberty St., Sumter, S. C., CA **$1,273,731**, 74 mi. 115 KV ELECTRIC TRANSMISSION LINE, and 115 KV SWITCHING STATION, Berkeley, Georgetown and Horry Counties, SOUTH CAROLINA. South Carolina Pub. Service Auth., Moncks Corner, S. C. BA 9/21/61. CD 9/19/61, under LB.

▲ **ALABAMA**—State Hy. Dpt., Montgomery, Zone 4, Bids opened 9/29, BRIDGE,

L. G. Wasson Coal Mining Corp., Boonville, Ind., LB **$1,599,459**, 0.262 mi. bridges over Coosa River E. of Riverside on Inter. Rte. 20, St. Clair-Talladega Counties. **(Correction**—low bidder's address). CD 10/9/61, under LB.

▲ **LOUISIANA** — Ascension-St. James Bridge & Ferry Auth., Hotel Donaldson, 508 Mississippi St., Donaldsonville, La., BRIDGE,

Morrison-Knudsen Co., Inc., 150 East 42 St., New York, N. Y., CA **$7,483,000**, substrtucture for Sunshine Toll Bridge across Mississippi River at Donaldsonville. BA 7/26. CD 7/31/61, under LB.

▲ **KENTUCKY**—Commonwealth Ky., Dpt. Hys., Frankfort, ROADS,

Ralph Myers Contrg. Corp., Box 230, Salem, Ind., CA **$4,656,384**, grade, surf. service roads 4.009 mi. Lexington-Catlettsburg, I-64-8(8) 184, Boyd Co.; CA **$2,874,981**, grade, surf. service roads 2.883 mi. Lexington-Catlettsburg. I-64-8 (9) 187, Boyd Co. BA 9/29, CA 10/6. CD 10/3/61, under LB.

▲ **Millstone Constr. Co., Inc.**, 203 City National Bank Bldg., Centralia, Ill., CA **$1,041,946**, SANITARY SEWERAGE SYS., Sect. 2, OKALONA (BR. LOUISVILLE), KY. Okalona Sewer Constr. Dist., Okalona, Ky. BA 9/26, CA 10/2. CD 10/4/61, under LB.

▲ **Johnson, Drake & Piper, Inc.**, 3330 Peachtree Rd., Atlanta, Ga., CA **$2,054,478**, 10 FILTER BASINS, FILTRATION PLANT, NASHVILLE, TENN. City, Waterworks Dpt., City Hall, Nashville, Tenn. BA 9/19/61. CD 9/26/61, under LB.

BUILDINGS—LB & CA

▲† **Southside Plumbing Co.**, P.O. Box 221, Farmville, Va., CA **$1,291,041**, REHABILITATION of FAMILY HOUSING UNITS, Hunter Air Force Base, INV. 09-602-62-1, SAVANNAH, GA. Purchasing & Contracting Office, Bldg. 921, Hunter Air Force Base, Savannah, Ga. BA 8/29/61. CD 9/6/61, under LB.

▲ **Silas S. Kea & Sons**, P.O. Box 139, Ivor, Va., CA **$2,343,800**, 1 story, 178,000 sq. ft. masonry Chesapeake HIGH SCHOOL, incl. air-conditioning, HAMPTON, VA. City of Hampton School Bd., 19 Carey St., Hampton, Va. BA 9/28/61, CA 10/4/61. CD 10/3/61, under LB.

▲ **Virginia Engineering Co., Inc.**, 80 29th St., Newport News, Va., CA Est. **$1,000,000**, 120,000 sq. ft. mfg. PLANT, RALEIGH, N. C. Corning Glass Works, Walnut St., Corning, N. Y. BA 9/29/61. CD 9/12/61.

Clarence Mobley Constr. Co., 610 11th St., Augusta, Ga., CA **$968,400**, HOSPITAL ADDN., ALTERATIONS, AUGUSTA, GA. Sisters of St. Joseph of Carondelet, 807 Broad St., Augusta, Ga. BA 8/15/61. CD 8/23/61, under LB.

▲ **Arnold Constr. Co.**, Murray Bldg., Palm Beach, Fla., CA Est. **$2,400,000**, 166 unit APARTMENT, JACKSONVILLE, FLA. Riverton Towers Apartments, c/o contractor.

▲ **A. W. Smith & Son**, 607 Lakeshore Dr., Leesburg, Fla., LB **$1,393,850**, (4 bidders), Leesburg GENERAL HOSPITAL, LEESBURG, FLA. City, City Hall, Leesburg, Fla. BA 9/28/61. CD 9/11/61.

▲ **Jehle Bros. Constr. Co.**, P.O. Box 4128, Montgomery, Ala., CA Est. **$1,500,000**, 175,000 sq. ft. SHOPPING CENTER, PENSACOLA, FLA. Fetterman Corp., c/o Suburban Realty Corp., 1625 Barrancas St., Warrington, Fla.

▲ **Paver Constr. Co., Inc.**, 1229 Mango Ave., Sarasota, Fla., Owner Builds, **$3,000,000**, 300 to 350 RESIDENCES, SARASOTA, FLA.

▲ **Tudor Constr. Co.**, 1284 Murray, Alexandria, La., LB **$1,241,301**, Proj. CH-LA-38(D) convert Navy barracks into HOUSING for Women Students, BATON ROUGE, LA. Louisiana State University, Boyd Hall, Baton Rouge, La. BA 10/5. CD 9/25/61.

▲ **Gervais Favrot Co., Inc.**, 330 Balter Bldg., New Orleans, La., CA **$2,112,200**, 300,000 sq. ft. DISTRIBUTION CENTER, WAREHOUSE, OFFICE BLDG., two SERVICE BLDGS., NEW ORLEANS, LA. National Tea Co., Dist. Center, c/o August Perez, archt., 2609 Canal St., New Orleans, La. BA 6/9, CA 10/5. CD 8/11/61, under LB.

MIDDLE WEST

HEAVY CONSTRUCTION—BA

▲ **Ill., Chicago**—BA 10/31—Federal Aviation Agency, Procurement Section, Rm. 110,4825 Troost Ave., Kansas City - 10, Mo., ASR-4 RADAR FACILITY, O Hare International Airport, Inv. CE 62-33. CD 2/10/60.

▲ **Ill., Chicago**—BA 11/3—Dpt., Purchases, City Hall, Zone 2, BRIDGE SUPERSTRUCTURE over Chicago River, $1,250,000. CD 10/23/59.

HEAVY CONSTRUCTION—LB & CA

▲ **OHIO**—State Hy. Dpt., State Depts. Bldg., Columbus, Zone 15, ROAD,

Joseph Bucheit & Sons Co., 4040 Simon St., Youngstown, O., CA **$4,288,557**, six lane westward extension Akron Expressway from Sweitzer Ave. to Bowery St., incl. bridges, Proj. 663, Summit Co. BA 9/26/61. CD 9/29/61, under LB.

▲ **OHIO**—State Hy. Dpt., State Depts. Bldg., Columbus, Zone 15, Bids opened 10/10, ROADS,

O.—**John F. Casey Co., Inc.**, P.O. Box 1888, Pittsburgh, Pa., LB **$6,397,923**, est. $6,563,500, (7 bidders),

EXCLUSIVE
Gary Galok*
SUPER
ALUMINUM
GRATING

EXTRA STRONG . . .
BETTER LOOKING . . .
LIGHTER WEIGHT!

Exclusive swaging and forming process prevents cross bars from turning, twisting, coming loose or falling out . . . provides greater strength and rigidity than gratings using obsolete methods of joining bars. Only Gary Galok Aluminum Gratings offer all these advantages:

High strength to weight ratio. Minimum deflection . . . easier to install.

Non-rusting and corrosion resistant. Ideal where chemical conditions prevail.

Can be used for decorative purposes, sun-shades, grilles, etc. Can be anodized in sunfast colors to blend with surroundings.

Available with serrated or plain bars—in all sizes to meet practically every requirement.

*Patent Pending

Write for Bulletin
Dept. J-17, E. Seventh Ave., Gary, Indiana

ROCKWELL-STANDARD
CORPORATION
Grating Division, Gary, Indiana

you can't

PATCH IT!

Some things can't be patched, let's face it. Among them are a bond issue and a sewer line. If either fails, you start all over again—and that's expensive.

If your city puts inferior sewer pipe in the ground—and gases and acids ruin it—somebody's got to dig it up and replace it. That costs you—the taxpayer—a whole lot more money than putting down lifetime pipe in the first place.

Putting in an inferior sewer pipe is a real penny-wise, pound-foolish idea, anyway. The big cost of putting in a sewer line is tearing up streets and digging the ditch, NOT the pipe. Actually the pipe—the best, lifetime pipe—averages about only 12 percent of the cost of the job.

Lifetime pipe is Vitrified Clay Pipe. It can save you untold tax dollars in the long run.

No, you can't patch a sewer line any more than you can a bond issue. But you can patch a hole in your money pocket—and the time to patch it is before you've lost a lot of money. That means demanding lifetime pipe—Vitrified Clay Pipe—for the next sewer line in your community.

Public health is important. Your city may need to upgrade its sewer lines.

Find out how by writing to:

NATIONAL CLAY PIPE MANUFACTURERS, INC.
1028 Connecticut Ave., Washington, D. C.

Please send me full details on the new factory-made compression joints on Clay Pipe.

(name)

(company)

(street address)

(city and state)

B-4C23 EN

COMPRESSION SEALED, VITRIFIED
CLAY IMPERVIOUS PIPE
THE STANDARD in SANITARY SEWERS

NATIONAL CLAY PIPE MANUFACTURERS, INC.
1028 Connecticut Avenue, N.W.
Washington 6, D.C.

main part Fort Hayes interchange to connect north leg of innerbelt to east leg and both to North Freeway, ramps and frontage roads, incl. Broad St. Interchange and five grade separations, Proj. 678, Franklin Co.

O.—**Hoosier Fence Co.,** 1701 E. 38th St., Indianapolis, Ind. LB **$129,070,** est. $162,300, (7 bidders), traffic signs Interstate 70 and USR 40 between Springfield to Clayton Area 18 mi., Proj. 677, Clark and Mongomery Counties;

O.—**Kelley & Myer Co., Inc.,** 1211 Gibson St., Youngstown, O., LB **$137,311,** est. $143,400 (1 bidder) resurf. SR 46 in village of Waterford, widening, resurf. northward to SR 7 intersection, two concrete bridges replaced with wider pipe arches, Proj. 683, Columbiana Co. CD 9/18/61.

▲ **OHIO**—State Hy. Dpt., State Depts. Bldg., Columbus, Zone 15, Bids opened 10/10, BRIDGE,

The **Brewer Co., Inc.,** 7374 Main St., Newton, O., LB **$1,435,328,** est. $1,561,300 (5 bidders) reconstr. West Fork Mill Creek Bridge, widening resurf. 4.9 mi. USR 27 at intersection with Blue Rock Rd. at Cincinnati north corp. line and runs northwest to the Struble Rd. intersection, Proj. 680, Hamilton Co. CD 9/18/61.

▲ **Kenny Constr. Co.,** 3220 Oakton St., Skokie, Ill., CA **$1,125,000,** WATERWORKS, 1,900 ft. 84 in. concrete WASHWATER DISCHARGE LINES, Central Filtration Plant, Proj. 80.391-61-3A, CHICAGO, ILL. Dpt. Purchases, City Hall, Chicago 2, Ill. BA 9/25/61, CA 10/3/61, CD 10/2/61, under LB;
Consolidated Constr. Co., 6350 N. Clark St., Chicago, Ill., CA **$960,330,** INTERIOR RAMPS, Central Filtration Plant, tunnel connection to North Side Pumping Station, Proj. 80.391-61-3A (Chicago, Ill.).

▲ **Metropolitan Sewerage Comn. of the County of Milwaukee,** P.O. Box 2079, Milwaukee, Wis., rejected bids Sept. 26, 144 in. diam. SEWER SOUTH PENNSYLVANIA AVE., Oak Creek, MILWAUKEE, WIS. LB **$3,562,300.** CD 9/29/61, under LB.

▲ **MICHIGAN**—State Hy. Dpt., 732 Mason Bldg., Lansing 26, ROAD,

Pierson Contg. Co., 200 Eddy Bldg., Saginaw, Mich., CA **$1,819,900,** 5 mi. Interstate 75 Freeway from Kinross north to existing US 2 about 8 mi. south of Sault Ste. Marie, Chippewa Co. BA 9/18, CA 10/4. CD 9/21/61, under LB.

BUILDINGS—LB & CA

▲ **D & D Constr. Co.,** 3171 E. Derbyshire Rd., Cleveland 18, O., Owner Builds, **$2,500,000,** $750,000 first year (3 year program), 125 HOMES, about ¾ mi. west Lost National Rd., EASTLAKE, O.

▲ **Drost-Simon Builders,** 2119 S. Green Rd., Cleveland 21, O., Owner Builds, **$2,500,000** $750,000 first year (3 year program) 125 HOMES, ¾ mi. west of Lost National Rd., EASTLAKE, O.

▲ **Rzepka Constr. Co.,** 4913 Van Epps Rd., Cleveland 9, O. Owner Builds, **$2,500,000.** $750,000 first year (3 year program) 125 HOMES, west of Lost Nation Rd. about ¾ mi., EASTLAKE, O.

▲ **Eli Clugan Bldg. Co.,** c/o Drage Realty Co., 706 Middle Ave., Elyria, O., Owner Builds, **$1,000,000,** 46 HOMES, University Heights, 18 acre site east of E. River Rd., University Ave., ELYRIA, O.

▲ **King Packer Builders,** 6085 State Rd., Parma, O., Owner Builds, **$1,800,000,** 81 RANCH and SPLIT LEVEL HOMES, Golden Gate Estates, Giesse Dr. and Jackie Lane, MAYFIELD HEIGHTS, O. Richard Cowan, 19427 Winslow Rd., Shaker Heights 22, O., archt.

▲ **J. P. Cullen & Sons,** 330 East Eastern Ave., P.O. Box 72, Janesville, Wis., CA **$1,219,177,** general contract NURSING HOME, JANESVILLE, WIS. Rock County, Courthouse, Janesville, Wis. BA 9/6/61. CD 9/12/61, under LB.

▲ **E. Millikin,** 3806 West Douglas Rd., Milwaukee, Wis., CA **$1,007,200,** general contract Morse JUNIOR HIGH SCHOOL, MILWAUKEE, WIS. School Bd., 5225 West Vliet St., Milwaukee, Wis. BA 9/21/61, CA 10/4/61. CD 9/26/61, under LB.

MISSISSIPPI TO ROCKIES

HEAVY CONSTRUCTION—BA

▲ **Tex., Waco**—BA 11/1—City, City Hall, Cont. 28A & 28C, 36, 54, 66 and 72 in. raw WATER LINE, Cont. 30, Mt. Carmel CHEM. BLDG., Cont. 31,200,000 gal. WASH WATER TANK. $1,033,000. Plans deposit $35-Cont. 30; $15-Conts. 28A & 28C, and Cont. 31. Joe J. Rady, 1606 Continental Life Bldg., Fort Worth, engr. CD 1/19/61.

▲† **Texas**—BA 11/2—U. S. Eng., 100 W. Vickery, Fort Worth, RELOCATION State Hy. 103, McGee Bend Dam and Reservoir, Angelina River, ENG-41-443-62-32. $2,000,000. CD 9/25/61.

▲ **Mo., St. Louis**—BA 11/7—City, Bd. P. Service, 304 City Hall, Zone 3, 600 ft. LIGHT PLANE RUNWAY 150 ft. wide, Lambert-St. Louis Municipal Airport, Natural Bridge and Brown Rds., St. Louis County. $1,226,460. Horner & Shifrin, 1211 Locust St., Zone 3, engrs. CD 4/29/59.

BUILDINGS—BA

▲ **Tex., Waco**—BA 10/31—Baylor University, 1405 S. 5th St., 3 story, 96,000, sq. ft., brick, ltwt, conc. roof deck, bit. rein.-con. foundation, and fr. plaster, terrazzo and ceramic tile, A/C GIRL'S DORMITORY, $1,250,000. Plans deposit $100. Easterwood & Drennon, 708 N. Valley Mills Drive, archts. Wm. K. Hall, Jr. & Co., Braniff Bldg., Dallas, engrs. CD 3/30/61.

▲† **Tex. Fort Hood**—BA About 11/22—U. S. Eng., P.O. Box 1600, Fort Worth, 1 story, about 13,280 sq. ft., masonry, BATTALION MESS BLDG., 1 story, about 12,155 sq. ft., masonry, BATTALION ADMINISTRATION and SUPPLY BLDG., and three 3 story, about 40,750 sq. ft. each EM BARRACKS, with mess, ENG-41-443-62-32, $2,500,000. Small business concerns only. CD 9/8/58

▲ **Tex., Skidmore**—Bids Asked—Tidewater Oil Co. & Associates, M. Esperson Bldg., Houston, GAS PROCESSING PLANT, Normanna Field, $1,000,000. CD 8/10/61.

HEAVY CONSTRUCTION—LB & CA

▲ **MISSOURI**—State Hy. Dpt., Jefferson City, Bids opened 10/4, ROADS,

Mo.—**W. J. Menefee Constr. Co. & Koss Constr. Co.,** 510 Iowa Des Moines Bank Bldg., Des Moines 9, Iowa, LB **$1,856,117,** (5 bidders), gr., culverts, 2-24 ft. conc. pavts. 5.831 mi. Proj. I-70-2(10), Saline Co.;

Mo.—**Welton Ideker,** Mound City, Mo., LB **$1,328,022,** (5 bidders) gr., culverts, 24 ft. conc. pavt. 5.44 mi. I-IG 35-2(5), Harrison Co., LB **$95,133,** (5 bidders), gr., culverts, 24 ft. conc. pavt. 0.709 mi. Prof. F-136-1(3), Harrison Co. CD 9/13/61.

▲ **ARKANSAS**—State Hy. Comn., State Capitol, Little Rock, ROADS,

Ark.—**W. R. Fairchild Co. Ltd., Robbie A. Sims, Div.,** Farmerville, La., CA **$1,079,099,** (6 bidders), approx. 9.291 mi. surfacing on Fordyce-Sheridan Road, State Hy. 167, Sec. 9 and 10, Proj. 1387, Dallas and Grant Counties;

Ark.—**McMillin-Burkett Constr. Co.,** P.O. Box 1161, Texarkana, Tex., CA **$713,092,** (4 bidders), surfacing approx. 0.09 mi. remodeling two rein.-con. deck girder span brs. and extending one bridge length culvert on Fouke-Texarkana Rd., State Hy. 71, Sec. 2, Proj. 3574, Miller Co.;

Ark.—**Reynolds & Williams,** P.O. Box 1207, Little Rock, Ark., CA **$654,970,** (5 bidders), surfacing approx. 5.9 mi. one rein.-con. slab span bridge, remodeling 3 RCDG span bridges, extending one bridge length culvert on State Hy. 167, Sec. 1, Junction City-El Dorado Rd., Proj. 7565, Union Co. Grand total $2,447,161. BA 10/4/61, CA 10/4/61. CD 9/15/61.

▲† **U. S. Eng., Ballistic Missile Constr. Office,** 5651 W. 96th St., Los Angeles, Calif., cancelled bids to have been opened Oct. 10, MINUTEMAN MISSILE COMPLEX FACILITIES, near Minot Air Force Base, ENG-04-548-62-6, NORTH DAKOTA, Over **$10,000,000** Ralph M. Parson Co., 617 W. 7th St., Los Angeles 17, Calif., engr. CD 8/22/61.

▲ **TEXAS**—State Hy. Comn., 11th and Brazos Sts., Austin, Bids opened Oct. 10, ROADS,

Tex.—**Hugh McMillan,** Box 1612, El Paso, Tex., LB **$1,268,954,** (7 bidders), grading, strs., fl. base and A.C. pvt., 11.941 mi., Hy. IH 10, I 10-1(56), El Paso Co.;

Tex.—**Gulf Bitulithic Co.,** Box 2572, Houston, Tex., LB **$392,627,** (7 bidders), reconstr. grading strs. fl. base and surf., 8.768 mi., C 1258-3-13, etc., Hy. FM 1093, Harris and Fort Bend Counties. CD 9/21/61.

▲ **TEXAS**—State Hy. Dpt., 11th and Brazos Sts., Austin, ROADS,

Owner Builds, **$1,250,000,** hurricane emergency repairs roads in Nueces, San Patricio, Refugio, Calhoun, Jackson, Matagorda, Brazoria, Galveston, Chambers and Jefferson Counties.

BUILDINGS—LB & CA

▲ **Standard Constr. Co.,** 212 S. Sixth St., Minneapolis, Minn., CA Est. **$9,200,000,** 17 story HOTEL, Nicollet and Marquette Aves. and S. Third and Fourth Sts., MINNEAPOLIS, MINN. Sheraton Corp. of America, 470 Atlantic Ave., Boston, Mass. CD 10/11/61.

▲ **Volp Constr. Co.,** 775 Colorado Ave. S., Minneapolis, Minn., CA **$1,300,000,** 2 story, 524,864 cu. ft. MOTEL, 4820 Olson Memorial Hy., MINNEAPOLIS, MINN. Western Master Motels, c/o contractor.

▲† **Kesk, Inc.,** 136 S. Derbigny St., New Orleans, 12, La., CA **$8,156,233,** 500 units CAPEHART HOUSING, Ellsworth Air Force Base, ENG-39-601-62-4, RAPID CITY, S. D. Base Procurement Office, Ellsworth Air Force Base, Rapid City, S. D. BA 8/31/61. CD 9/19/61, under LB.

▲ **Johnson Drake & Piper,** Baker Bldg., Minneapolis, Minn., CA **$2,194,000,** CONTAINER FACTORY, DENISON, TEX. R. C. Can Corp., c/o Pillsbury Co., 314 S. Chandler St., Denison, Tex. BA 5/17/61. CD 4/27/61.

▲ **R. H. Smith & Co.,** 1915 Kolfahl St., Houston, Tex., CA **$1,792,000,** HOSPITAL, LA MARQUE, TEX. Galveston County Memorial Hospital, Courthouse, Galveston, Tex. BA 8/30/61. CD 9/12/61, under LB.

▲ **Brown & Root, Inc.,** 4100 Clinton Drive, Houston, Tex., CA Est. **$4,000,000,** 45 million lbs./yr. capacity VINYL ACETATE PLANT, SEADRIFT, TEX. National Starch & Chemical Corp., 750-3rd Ave., New York 17, N. Y.

▲ **Warrior Constructors, Inc.,** P.O. Box 74, Houston, Tex., CA **$4,600,000,** 1 story, 280,000 sq. ft., struct. steel frame, metal and plastic exterior, rubber tire FACTORY-PLANT-OFFICE, TYLER, TEX. Kelly-Springfield Tire Co., Factory Kelly Blvd., Cumberland, Md. CD 6/5/61, under CA.

▲ **John J. Stokes Constr. Co.,** P.O. Box 629, San Marcos, Tex., CA **$1,777,771,** 3 story, 100,000 sq. ft. MOTHER HOUSE and NOVITIATE, VICTORIA, TEX. Congregation of Sisters of the Incarnate Word & Blessed Sacrament, c/o Di Stefano & Cerna, archts. 6936 San Pedro Ave., San Antonio, Tex. BA 9/25/61. CD 10/5/61, under LB.

▲ **R. G. Farrell,** E. Hgy. 80, Odessa, Tex., CA **$1,096,000,** Booker T. Washington HIGH SCHOOL, WICHITA

DIAMOND BLADE SAWING OF CONCRETE

Case Report: DULLES AIRPORT

TYPE OF WORK – Concrete Runways.

AGGREGATE – Trap Rock.

SAWING OPERATION – Diamond blades for all sawing.

TYPE OF DIAMOND – Engelhard Hanovia natural diamond abrasive.

DIMENSIONS – Depth of cut varies with depth of slab. 15″ concrete is cut 3″ x ¼″. 8″ and 9″ slabs are cut 2″ x ¼″. Transverse joints are cut on 25′ centers.

PRODUCTION – 6′ per minute.

At the new, largest-in-the-world Dulles Airport now under construction, durable smooth-riding runways requiring a minimum of maintenance are mandatory for efficient, uninterrupted service. The big jets will really pound those runways and unless a precision jointing method is used, the slabs could not withstand the punishment. That's why the specifications for both transverse and longitudinal joints call for diamond blade sawing.

Diamond Blade Sawing maintains maximum uniformity and homogeneity of the concrete in the joint areas. Aggregate is removed not displaced—thus eliminating the basic cause of spalling, cracking and chipping…reducing maintenance costs by as much as 50%. Joints are made to precise dimensions by high-speed, semi-automatic procedures that neither interfere with nor delay the paving schedule. Because sawing may be done day or night, the timing of the operation can be properly coordinated with the curing cycle.

For detailed information and field-use reports
from state highway officials and contractors, write to
Engelhard Hanovia, Inc., for Report #101.

★ENGELHARD HANOVIA, INC.★
INDUSTRIAL DIAMOND DIVISION
113 ASTOR STREET • NEWARK 2, NEW JERSEY

stop

FACTS YOU SHOULD KNOW ABOUT WALJOHN WATERSTOP

Check these 9 Points... and then Specify
WALJOHN WATERSTOP

DO YOU KNOW?

1. WALJOHN PVC* Waterstops are proved to be 100% watertight.
2. WALJOHN PVC* Waterstops are virtually indestructible.
3. WALJOHN PVC* Waterstops are unaffected by their environment.
4. WALJOHN PVC* Waterstops are simpler to install than conventional metal or rubber waterstops.
5. WALJOHN PVC* Waterstops are manufactured in acccordance with U.S. Army Corps of Engineers Tentative Works Guide CE. #1402 and Ontario, Canada, Hydro-Electric Commission C-245-55.
6. WALJOHN PVC* Waterstops are joint-fused thermostatically by a specially made heat unit supplied by the Waljohn Company.
7. WALJOHN PVC* Waterstops are made in every shape and profile required in a PVC Waterstop.
8. WALJOHN PVC* Waterstops are prime-manufactured by the Waljohn Company in their own plant and certified to rigid specifications by one of America's oldest testing companies, The U.S. Testing Co., Inc..
9. WALJOHN PVC* Waterstops are being installed or have already been installed in every state in the Union in all types of construction.

An ample listing of installations is yours upon request.

WALJOHN WATERSTOP INC.
400 88th Street, B'klyn 9, N. Y.
SHORE ROAD 8-0300

We also manufacture the famous Ekonomy-Former PVC Chamfer-Strip

Please send me your FREE Illustrated Brochure, List of Installations, Profile Sheet and Samples.

Name of Firm ....
Street ....
City .... Zone .... State ....

PVC is Plastic

FALLS, TEX. Wichita Falls Ind. School Dist., Wichita Falls, Tex. BA 9/15/61. CD 9/22/61, under LB.

▲ **School Dist. No. 12,** 1201 W. Cheyenne Blvd., Colorado Springs, Colo., rejected bids 1 and 2 story, part bsmnt. HIGH SCHOOL in Skyway Park, COLORADO SPRINGS, COLO. LB **$1,346,774,** CD 9/11/61 under LB.

FAR WEST

HEAVY CONSTRUCTION—BA

▲ **Calif., Somis**—BA 10/30—Calleguas Municipal Water Dist., Box 183, Proj. 105, Calleguas Conduit, Unit 1, 5.88 mi. 48 in. WATER LINE, Burbank-Glendale. $1,000,000. Plans deposit $10. Perliter & Soring, 448 S. Hill St., Los Angeles, engrs. CD 10/19/60.

▲ **Calif., Sacramento**—BA 10/31—Sacramento Municipal Utility Dist., 1708 59 St., Camino Powerhouse PENSTOCK and appurtenant works, Upper American River Proj., El Dorado Co., Inv. No. 2230. About $2,000,000. CD 8/17/61, under LB.

▲ **Calif., Los Angeles**—BA 11/3—Los Angeles County Flood Control Dist., 2250 Alcazar St., Proj. 502, Overland Ave. STORM DRAIN, Unit 3. $1,003,600. M. E. Salsbury, engr. CD 11/10/58.

▲ **Calif., Sacramento**—BA 11/16—City Council, City Hall, 9 and I Sts., WATER FILTRATION PLANT, American River near Sacramento State College. $10,000,000. Bid date changed. James Montgomery, 535 E. Walnut St., Pasadena, engr. CD 9/22/61.

BUILDINGS—BA

▲ **Calif., Anaheim**—BA 11/7—Anaheim High School Dist., 123 N. Citron St., Loara HIGH SCHOOL (8 bldgs.), Proj. 1. $2,300,000. Plans deposit $50. Smith, Powell, Morgridge, 208 W. 8 St., Los Angeles, archts.

HEAVY CONSTRUCTION—LB & CA

▲† **Idaho**—Dpt. Commerce, Bureau P. Rds., Morgan Bldg., Portland, Ore., ROAD,

DeAtley-Overman, Inc., 3110 N & S Hy., Lewiston, Idaho, CA **$1,065,644,** grading, base, bit. plant mix paving, 38.7 mi. Lewis and Clark Hy., 38 mi. east of Lowell, Idaho Co. BA 9/29/61. CD 10/3/61, under LB.

▲† **Olson Constr. Co.,** 1549 South 2nd West, Salt Lake City 15, Utah, CA **$1,267,000,** second-phase, three MISSILE ASSEMBLY BLDGS., renovation fifteen buildings etc., for Air Force, HILL AIR FORCE BASE, UTAH. Boeing Co., 7755 East Marginal Way, Seattle 4, Wash. Leo A. Daly & Assocs., 607 Securities Bldg., Seattle 1, Wash., archts. BA 9/6/61, CA 9/15/61. CD 10/4/61, under LB.

▲ **NEVADA**—State Dpt. Hys., State Hy. Bldg., Carson City, Bids opened Oct. 5, ROAD,

Neilsen & Miller Constr. Co., Twin Falls, Idaho, CA **$1,100,000,** constr. 13.845 mi. portion primary highway system, U.S. Hy. 93 bet. 2 mi. north of Contact and 0.5 mi. south of Idaho-Nevada Line, Elko Co. CD 9/19/61.

▲ **WASHINGTON**—State Hy. Comn., Transportation Bldg., Olympia, ROAD,

Peter Kiewit Sons, 215 S.C St., Vancouver, Wash., CA **$1,850,598,** draining, slop stabilization, bridge Primary State Hy. 8, Klickitat Co. BA 9/6/61. CD 9/8/61, under LB.

▲ **WASHINGTON**—State Hy. Comn., Transportation Bldg., Olympia, BRIDGE,

MacRae Bros., Box 3767, Seattle, Wash., CA **$2,376,361,** Portage Bay Bridge, Roanoke Expressway, King Co. CD 10/5/61, under LB.

▲ **CALIFORNIA**—State Div. Hys., 120 S. Spring St., Los Angeles, ROAD,

Guy F. Atkinson Co., 10 West Orange Ave., South San Francisco, Calif., CA **$4,729,866,** 1½ mi. eight-lane freeway, San Diego Freeway between Latijera Blvd. and 0.4 mi. north of Jefferson Blvd., Culver City, Los Angeles Co. BA 9/21. CD 9/26/61, under LB.

▲† **Gunther & Shirley Co. and E. V. Lane Corp.,** 2675 Park Bldg., Palo Alto, Calif., CA **$2,949,108,** completion of Trinity, Clear Creek and Spring Creek POWERPLANTS and Clear Creek SWITCHYARD, Shasta Co., Central Valley Proj., Spec. DC 5640, CALIFORNIA. Bureau Reclamation, Dpt. Interior, Lewiston, Calif. BA 9/19. CD 9/22/61, under LB.

▲ **Fisher Contg. Co.,** P.O. Box 6306, Phoenix, Ariz., CA **$3,206,503,** INTERCEPTOR SEWER, Contr. 4, SAN DIEGO, CALIF. City, Rm. 161, Civic Center Bldg., San Diego 1, Calif. BA 9/27, CA 10/10. CD 9/29/61, under LB.

BUILDINGS—LB & CA

▲† **U. S. Eng.,** 1519 S. Alaskan Way, Seattle 4, Wash., rejected bids Sept. 7, CAPEHART HOUSING, ENG-62-5, FORT LEWIS, WASH. LB **$9,046,200.** CD 9/12/61, under LB.

▲ **J. S. McConaghy,** 7721 Bernese Rd., SW, Tacoma, Wash., CA Est. **$2,800,000,** APARTMENT, 4001 Waller Rd., TACOMA, WASH. Western Development Corp., 10030 Bridgeport Way, Tacoma, Wash.

▲ **Douglas W. Edwards,** 2131 W. Bale Rd., Anaheim, Calif., CA **$1,650,000,** 100 DWELLINGS, Tract 4212, ANAHEIM, CALIF. Sterling Homes, P.O. Box 509, Santa Ana, Calif. Earl G. Kaltenbach, 9772 Katella, Anaheim, Calif., archt.

▲ **Jay B. Allan Co.,** 36 E. Mason, Santa Barbara, Calif. LB **$1,066,000,** (6 bidders). 7 story (5 story Type 1, 2 story, Type III), 42,500 sq. ft. CONVENT ADDN., BURLINGAME, CALIF. College of Our Lady of Mercy, 2300 Adeline Dr., Burlingame, Calif. BA 10/3. CD 9/26/61.

Louetto Constr. Co., P.O. Box 543, Escondido, Calif., CA **$944,280,** Del Dios HIGH SCHOOL, ESCONDIDO, CALIF. Escondido Union School Dist., 5 and Maple Sts., Escondido, Calif. BA 9/11. CD 9/15/61, under LB.

▲ **Sunset Homes,** 435 W.5 St., Pomona, Calif., Owner Builds, **$1,613,000,** 97 DWELLINGS, Tract 26145, Slapango, Atitlan, Ticatica and E. Del Prado Drs., Yojoa Pl. and others, LA PUENTE, CALIF.

▲ **Stanton-Reed Co.,** 720 S. Palm Ave., Alhambra, Calif., CA **$1,775,000,** East Los Angeles COLLEGE ADDN., Phase III, incl. physics, engineering, music and men's gymnasium bldgs., LOS ANGELES, CALIF. Bd. Educ., 1425 S. San Pedro St., Los Angeles, Calif. BA 9/21, CA 10/3. CD 9/29/61, under LB.

▲ **Beacon Constr. Co.,** 1745 Filbert St., San Francisco, Calif., CA **$1,215,000,** Phase IV, HALL of JUSTICE, 7 and Broadway, OAKLAND, CALIF. City, City Hall, Oakland, Calif. BA 9/14. CD 9/26/61, under LB.

▲ **Taylor Constr. Co.,** 9350 Wilshire Blvd., Beverly Hills, Calif., Owner Builds, Approx. **$1,000,000,** 16 story West Pt. Loma Towers APARTMENT, SAN DIEGO, CALIF. Robert S. Chang, 1991 Heinz Ave., Berkely 10, Calif., archt.

▲ **Alscot Development Co.,** 17759 E. Valley Blvd., La Puente, Calif., Owner Builds, **$1,171,000,** 95 frame, stucco DWELLINGS, Tract 1260-1, SANTA SUZANA, CALIF.

▲ **Lewis C. Nelson & Son,** 2915 N. McCall St., Selma, Calif. LB **$1,172,300,** (3 bidders). Western HIGH SCHOOL ADDN., TULARE, CALIF. Tulare Union High School Dist., 755 E. Tulare St., Tulare, Calif. Kaestner, Hoerner & Young, 210 N. Encina Ave., Visalia, Calif., archts.-engrs.

▲ **Henry C. Beck Co.,** 6363 Wilshire Blvd., Los Angeles 48, Calif., CA **$3,000,000,** concrete OFFICE, 8155 Van Nuys Blvd., VAN NUYS, CALIF. Wm. H. Brownyard & Henry C. Beck, Co., 6363 Wilshire Blvd., Los Angeles 48, Calif. Welton Becket, 10000 Santa Monica Blvd., Los Angeles, Calif., archt. Richard R. Bradshaw 14547 Victory Blvd., Van Nuys, Calif., engr.

▲ **Hawaiian Dredging & Constr.,** 1350 Ala Moana Blvd., Honolulu, Hawaii, CA **$1,520,304,** Castle Memorial HOSPITAL, KAILUA, HAWAII. Windward Oahu Community Assoc., Kailua, Hawaii. BA 9/7, CA 10/2. CD 9/15/61, under LB.

CANADA

▲ **Que., Montreal**—BA 10/23—Montreal Building Trades Apprentice Training Comn., 5205 Parthenais St., 2 story concrete APPRENTICE TRAINING CULTURAL CENTER, Partenais St. $2,000,000. Paul H. LaPointe, 3534 Cote des Neiges Rd., archt. Brouillet & Carmel, 3600 Barclay Ave., engrs. CD 3/28/60.

HEAVY CONSTRUCTION—LB & CA

▲ **Peter Kiewit Sons Co. of Canada Ltd.,** 1587 W. 8th St., Vancouver, B. C., **Al Johnson Constr. Co., Ltd.,** Windsor, Ont., and **Poole Constr. Co., Ltd.,** Edmonton, Alta., CA **$4,903,750,** TUNNEL CONTROL SHAFT SUBSTRUCTURES South Saskatchewan River Dam, about 5 mi. north of Dunblane, Sask., ALBERTA. Prairie Farm Rehabilitation Administration, Motherwell Bldg., Regina, Sask. BA 9/7/61, CA 10/3/61. CD 9/14/61, under LB.

▲ **Northern Constr. Co. & J. W. Stewart Ltd.,** Suite 240, City Centre Bldg., 1450 City Councillors St., Montreal, Que., CA **$1,449,657,** MARINE AGENCY WHARF, Queen's County for Dpt. Transport, CHARLOTTETOWN, P. E. I. Dpt. P. Wks., Sir Charles Tupper Bldg., Ottawa, Ont. Witman, Benn & Assocs., Ltd., 22 Blawers Rd., Halifax, N. S., and D. O. Turnbull & Assocs., Ltd., 105 Prince William St., St. John, N. S., engrs. CD 9/19/61, under LB.

BUILDINGS—LB & CA

▲ **The H. K. Ferguson Co.,** 1783 E. 11th St., Cleveland, O., U.S.A., CA Est. **$38,000,000,** design and construct NEWSPRINT PLANT, WHITECOURT, ALTA. Alberta West Forest Products Corp. Ltd., 139-10021-100th St., Edmonton, Alta. CD 8/2/61.

▲ **Doran Constr. Co., (1960) Ltd.,** 5 Concord St., Ottawa, Ont., CA **$1,776,900,** (5 bidders), 1 and 2 story, concrete, steel, brick, precast panels, Brookfield Road HIGH SCHOOL, OTTAWA, ONT. Ottawa Collegiate Institute Bd., 662 Lyon St., Ottawa, Ont. BA 9/22/61. CD 9/18/61.

▲ **Futura Constr. (1960) Inc.,** 4733 Montee St. Remi, Pierrefonds, Que., CA Est. **$25,000,000** HOUSING DEVELOPMENT, near southern approaches to Champlain Bridge, BROSSARD, QUE. Trans Workd Development Corp., c/o contractor.

AMERICANS ABROAD

HEAVY CONSTRUCTION—BA

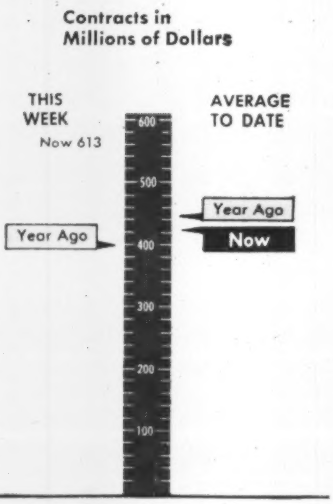
▲ **Indonesia**—BA 11/15—Ministry of Sea Communications, Djakarta, rehabilitation HARBOR FACILITIES, Port of Pontianak, Dist. of Kalimantan. Plans deposit $250. (Plans available from Indonesian Embassy, 2020 Massachusetts Ave. N.W., Wash., D. C., U.S.A., or Engineer's Office, 3325 Wilshire Blvd., Los Angeles, Calif., U.S.A.), Daniel, Mann, Johnson & Mendenhall, 1725 Eye St N.W., Wash., D.C., U.S.A., engrs. CD 3/29/60.

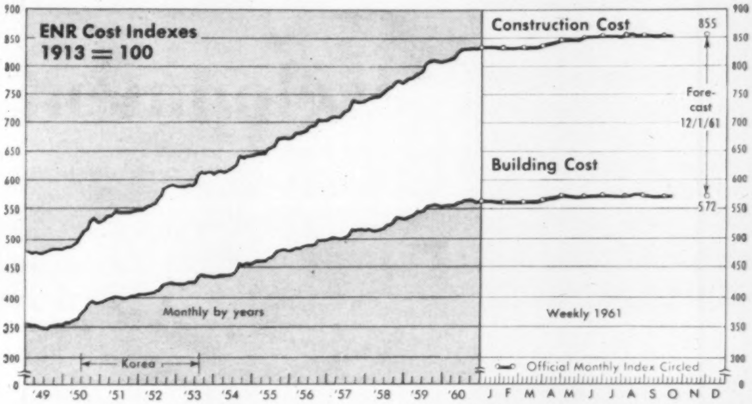
For additional reports see **CONSTRUCTION DAILY, REPORTS SECTION**

(Proposal Advertisements see pp. 131 to 133)

Construction Scoreboard

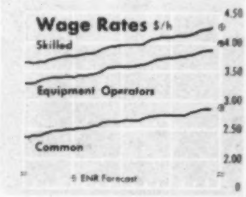
This Week . . .

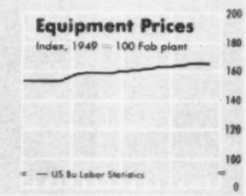


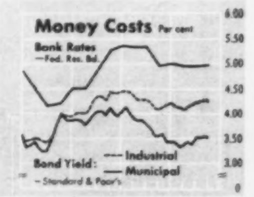


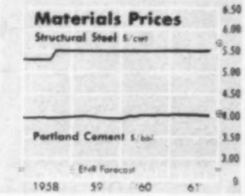
ENR INDEXES (1913 = 100), 20-cities average	Week of Oct. 12 1961	% Change from Sept. 14 1961	% Change from Oct. 13 1960
Construction Cost	853.93	+0.1	+3.0
Building Cost	570.14	−0.1	+1.6

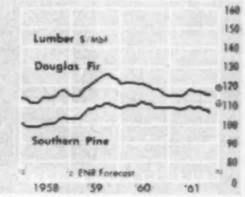
To convert above indexes to 1926 = 100: Divide Construction Cost by 2.080; Building Cost by 1.850.
1949 = 100: Divide Construction Cost by 4.770; Building Cost by 3.518.

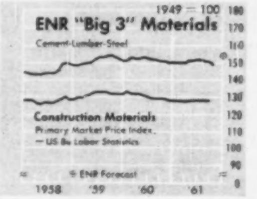












AMOUNT OF CONTRACTS LET

Contracts Awarded In 50 States By Type	This Week (millions)	Cum. 42 wks 1961 (millions)	Chge '60-'61 %
All Heavy Construction	$612.5	$18,141.9	− 3
By Ownership			
PRIVATE	386.9	8,969.2	−11
PUBLIC	225.6	9,172.7	+ 6
State & Municipal	200.4	7,189.4	+ 7
Federal	25.2	1,983.3	+ 4
By Type of Work			
PUBLIC			
Waterworks	9.1	316.4	−17
Sewerage	23.2	633.8	+33
Bridges*	28.4	546.9	−19
Highways	68.4	3,104.6	+12
Earthwork, Dams & Waterways	10.3	653.7	+ 2
Buildings:			
Excl. Housing	46.9	2,173.1	+10
Housing	29.6	685.9	+26
Unclassified	9.8	1,059.0	−11
PRIVATE			
Buildings:			
Mass Housing	179.7	4,154.3	−13
Commercial	42.5	2,105.6	+ 5
Industrial	160.7	2,332.3	+ 2
Unclassified	3.9	376.3	−60

*Includes Private bridges

NOTE: Minimum size projects included are: Waterworks and waterways, $53,000; other public works, $88,000; industrial buildings, $110,000; other buildings, $400,000.

NEW CONSTRUCTION CAPITAL

	Week of Oct. 12 (millions)	Cum. 41 wks 1961 (millions)	Chge '60-'61 %
Corporate Securities	$2.2	$2,700.0	+0.2
State & Municipal:			
All Except Housing	89.3	5,273.0	+0.8
Housing	1.8	100.6	−47
Federal Loans	0	197.4	+23
Federal Aid	0	3,463.6	+10
Total Nonfederal	$93.3	$11,734.6	+ 3
Federal Appropriations:			
Projects in U. S.	0	$3,132.4	− 1
Outside U. S.	0	89.9	−43
Total New Capital	$93.3	$14,956.9	+ 1

MATERIALS SHIPMENTS

		1961 Aug. (A) July (J)	1961 Cum. (No. of Mos.)	% Chg. from Year Ago Mo.	% Chg. from Year Ago Cum.
Portland Cement, Bur Mines	thous bbls	37,106(A)	208,809(8)	+ 2	+ 2
Concrete Paving Awards, PCA	thous sq yd	11,765(A)	76,063(8)	+ 5	+ 5
Fabricated Structural Steel	thous tons	359(A)	2,505(8)	− 4	− 2
Bookings, AISC	thous tons	385(A)	2,700(8)	+31	+ 6
Reinforcing Bars, Net, AISI	thous tons	231(A)	1,636(8)	+ 4	+13
Lumber, total NLMA	mil fbm	3,010(A)	21,049(8)	− 1	−13
Production, total	mil fbm	3,047(A)	21,274(8)	− 4	−11
Orders, total	mil fbm	2,923(A)	21,871(8)	− 1	− 5
Douglas Fir	mil fbm	678(A)	5,252(8)	− 7	− 3
Southern Pine	mil fbm	632(A)	4,467(8)	+16	+ 1
Unfilled Orders, Douglas Fir	mil fbm	466(A)	493(8)*	− 4	−16*
Southern Pine	mil fbm	225(A)	237(8)*	+14	+18*
Clay Products, Bureau of Census					
Brick, Unglazed, Common, Face	mil bri	603p(J)	3,552p(7)	− 3	− 5
Vitrified Clay Sewer Pipe	thous tons	161p(J)	986p(7)	−10	− 6
Structural Tile, Unglazed	thous tons	37p(J)	255p(7)	−16	−12
Asphalt Products, Bureau of Census					
Asphalt Roofing	thous sales sqs	5,867p(J)	31,723p(7)	− 3	+ 1
Asphalt Siding	thous sales sqs	73p(J)	431p(7)	− 7	−0.2
Aluminum, Wrought, Net, Bur Census					
Sheet and Plate (non-heat treatable)	mil lbs	101p(J)	725p(7)	− 8	− 2
Wire and Cable	mil lbs	30p(J)	196p(7)	+20	+13
Extruded Shapes (soft alloys)	mil lbs	71p(J)	490p(7)	+12	+ 3

EMPLOYMENT AND FAILURES

Contract Const Employment, BLS	thous	3,103(A)	2,723(8)*	+ 1	+0.3*
Contractor Failures, Dun & Bradstreet					
Number		262(A)	1,927(8)	+21	+14
Liabilities	thous	$27,716(A)	$132,748(8)	− 1	+ 7

* Average per month p = preliminary figures

New Development Bank Moves

Felipe Herrera, the young Chilean president of the Inter-American Development Bank (picture), is a charming and disarming man. He has to be. Mr. Herrera must charm into action U.S. and Latin American government agencies, money-lenders here and in Europe, businessmen up and down this continent and some recalcitrant U.S. and Latin American officials.

His bank has, almost overnight, become the major funnel and headquarters for the massive $20-billion Alliance for Progress program, shaped at Punta del Este, Uruguay. The bank, called IADP, has $1.5 billion to work with now and will get more. It will provide a healthy chunk of the AFP money needed, although it won't be the major amount.

More important is the fact that U.S. government aid officials, and American and European investors, are beginning to use the bank as a sort of "consortium headquarters" for coordinating the Alliance for Progress.

Mr. Herrera must keep running to pull all these powerful, but sometimes reluctant, forces together.

This week, for example, he flies to Colombia to sign two more loan contracts with that country's president, Leras Camargo. The loans—$3.5 million for upgrading the water supply for Cartegena and $500,000 for creating a new, Colombian engineering and economic programming department—swell IADB's total money loaned to $160 million through 44 separate agreements. All this has been accomplished in less than a year's time.

As the map shows, the bank places heavy emphasis on construction projects and engineering planning.

This week, while Mr. Herrera presses the accelerator for programs in Colombia, the Washington headquarters, with engineers from C. C. Huston & Associates, Canadian mining engineering consultants, aims to get Bolivia's $15-million mining program under way. Besides the Huston outfit, the bank gets consulting services from Morrison-Knudson Company's International Engineering Co., Inc.

But in addition to the consulting organizations, IADB has a 10-man permanent engineering staff, headed by Bernardo Grossling (also a Chilean), formerly a top staffer with Standard Oil Company of California.

Felipe Herrera, IADB president, gets action on loans for . . .

Colombia's loans and Bolivia's mining program, although getting minute attention for the moment, are just two jobs among more than 1,000 on file.

And to pay the bills, there are three major sources of money now being used on Latin American projects. The biggest source is the bank's own "hard money" sector—$850 million. Some $400 million of this will be paid-in capital coming from the U.S. (44%) and all of the Latin American government banks.

Then there is a special fund of $150 million, which the bank can commit as "soft loans" for long terms at low interest rates. Aside from managing and lending its own capital funds, the Inter-American Development Bank is the trust agent for the Social Progress Trust Fund Agreement signed by the U.S. and the Latin American countries at Bogota, Colombia, earlier this year. This fund, first proposed by the Eisenhower Administration and now being augmented and enlarged by President Kennedy, totaled $500 million. IADB got nearly $400 million of the fund to manage for the U.S. Loans from this fund, due in 30 years at 2% interest, are payable in local currencies if necessary.

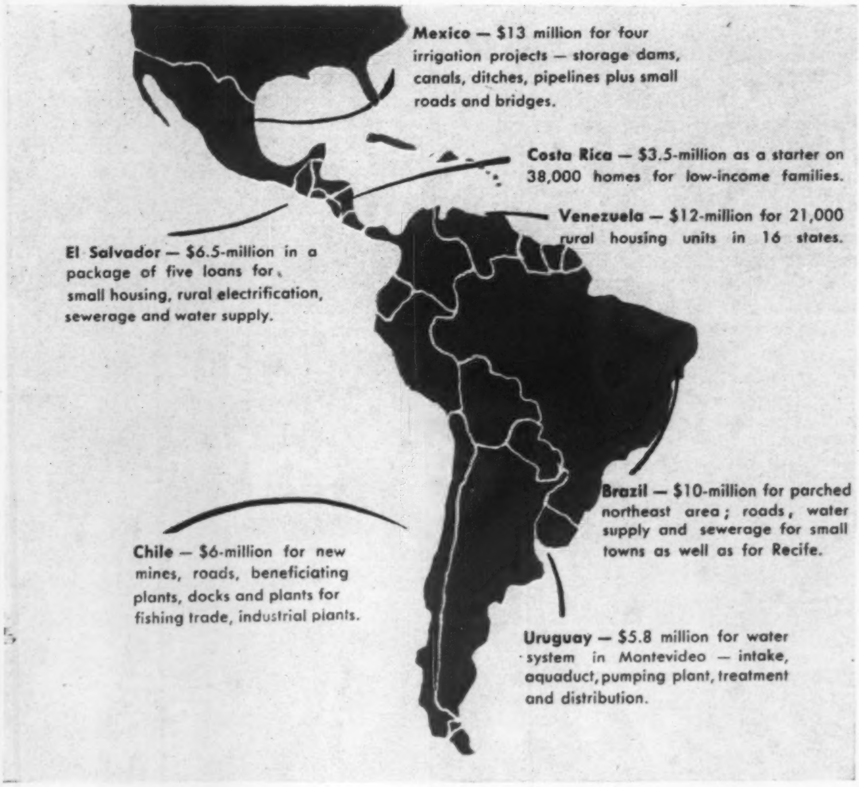
Here's the way the bank uses its own money, its agency fund money and the money of other international institutions and investors to meet Alliance for Progress loan applications.

By the first of this month, IADB had agreed to loan $92.6 million in response to 26 individual applications for "hard loan" projects. Projects fitting into this category are considered to be good risk investments. Projects such as the $5.8-million waterworks loan for the City of Montivideo and this week's $3.5-million loan for the Cartagena, Colombia, waterworks fall into the "hard loan" category.

Elsewhere in the "hard loan" field, the bank provides money for such things as a chemical detergents plant in Honduras, industrial and agricultural expansion in Guatemala, and big Mexican rural irrigation projects.

From the bank's own "soft loan"

Project Funds to Latin America



Mexico — $13 million for four irrigation projects — storage dams, canals, ditches, pipelines plus small roads and bridges.

Costa Rica — $3.5-million as a starter on 38,000 homes for low-income families.

Venezuela — $12-million for 21,000 rural housing units in 16 states.

El Salvador — $6.5-million in a package of five loans for small housing, rural electrification, sewerage and water supply.

Brazil — $10-million for parched northeast area; roads, water supply and sewerage for small towns as well as for Recife.

Chile — $6-million for new mines, roads, beneficiating plants, docks and plants for fishing trade, industrial plants.

Uruguay — $5.8 million for water system in Montevideo — intake, aquaduct, pumping plant, treatment and distribution.

wide variety of major projects in Latin American countries.

fund, 11 loans totaling $36.8 million had been made up to October 1. Bolivia gets a good portion of this money because of its inability to qualify for the more rigid hard loans. Bolivia's mining and agriculture got some $10 million earlier in the year to expand and upgrade its mining industry and open up new agricultural lands. The money is going into roads, new industrial plants, electric power plants, water resources development. These loans, repayable in local currencies, rank neither as good risks nor broad-range "social fund" projects.

The Social Progress Trust Fund, now an integral part of the U.S. government's share in Alliance for Progress, makes the bank a political power as well as a lending power in Latin America.

From this fund most of the big construction jobs, probably will come. As of October 1, the bank hadn't given out too many loans from the $394 million assigned to it by the U.S. Some $25.9 million was contracted in five loans and out of this amount $23.1 million went to low-income housing. The bank just started to process more Social Fund loans, since these loans demand solid, long-range area planning by the receiving Latin American government. It is in this sector, that the U.S. is bargaining with Latin Americans for social and economic reforms. There are already applications for more than $700 millio from this fund. The bank has been told it will get at least $200 million yearly over the next 10 years from direct U.S. aid money to replenish the Social Fund's coffers.

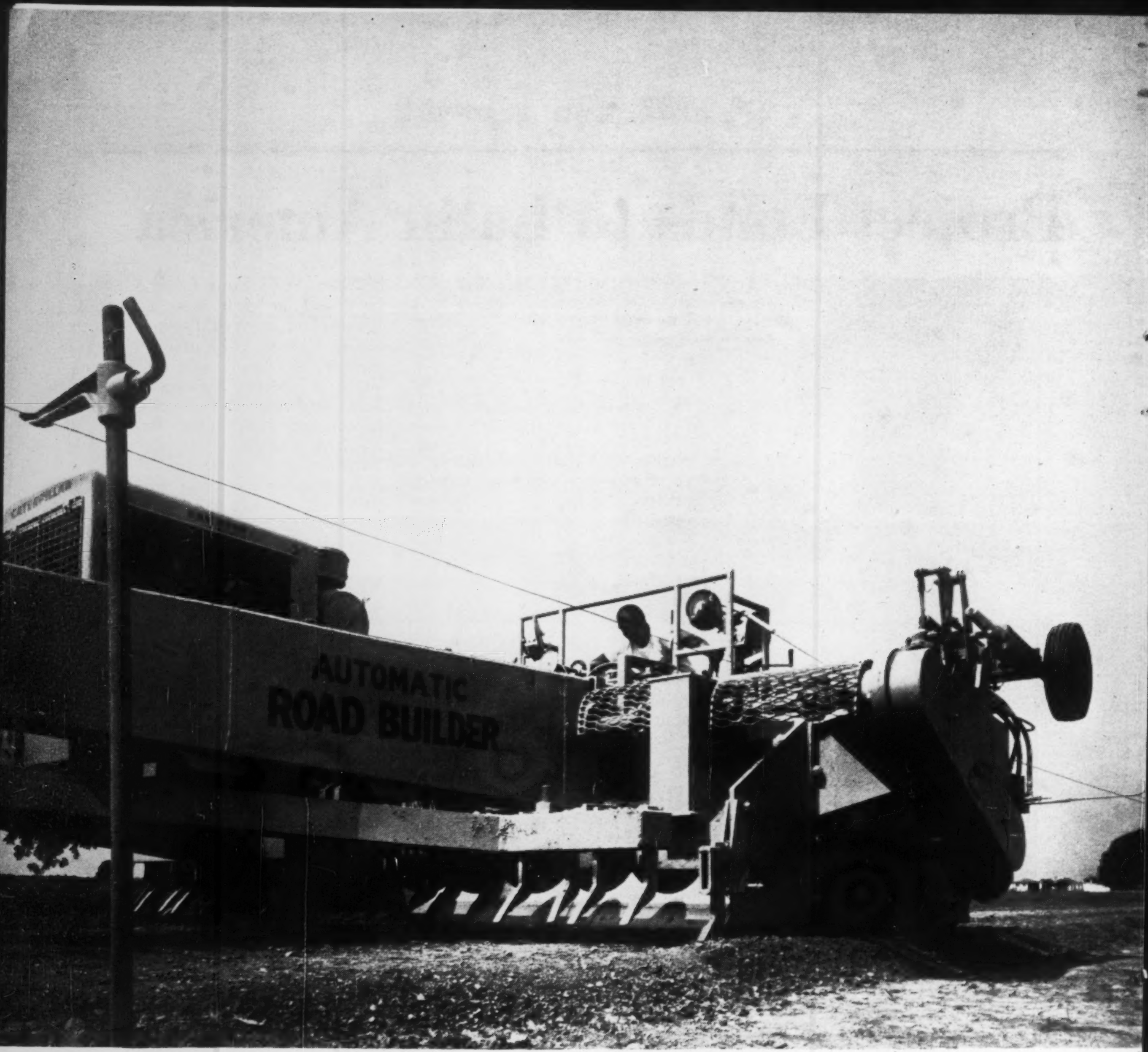
This fund, by contract with the U.S. government, is to be used strictly for the following:

- Housing for low-income groups. IADB doesn't make housing loans directly. Rather, loans are made through a newly created Latin American savings and loan institution or government housing agency. Examples of Trust Fund loans for housing can be found in such deals as IADB's $7.6-million loan to Panama to help finance cost of 3,000 new homes, $12 million to Banco Obrero (workers' bank) in Caracas, Venezuela, for self-help financing to go into 21,000 homes and $3.5 million for help in financing some 5,700 houses in Costa Rica. In many cases, the bank helps a local government set up, for the first time, a string of savings and loan banks to serve very-low-income aspirants for homebuilding.
- Land settlement and improved land use. Here the bank is working on a deal that gives Brazil $10 million for its parched northeastern lands. Feeder roads and irrigation stand high on the priority list in this land-use sector. Bolivia will also get considerable help for land use.
- Community water supplies and sanitation. Whenever a country can't present a hard loan waterworks job, such as the Montevideo project, it might fit into the rural water supply slot. El Salvador, for example, is getting money from the Social Fund in order to upgrade the waterworks and sanitation systems of four of its interior towns.
- Supplementary financing for education and training. A number of projects for rural schools and such things as new economic planning and engineering sources fit here.

Aside from its regular funds and the U.S. Trust Fund, IADB is beating the bushes in the world of international money.

Mr. Herrera went to Europe and returned with an even broader smile than he normally flashes after his money-getting trips. He had persuaded the German government, through its Export-Import Bank, to come in with IADB to help Bolivia's mining situation. The Germans agreed to $3.5 million now, perhaps much more later. He also got four private European banks from Rome, Dusseldorf, Hamburg and Zurich to participate in a $13-million loan for Mexican irrigation.

At home, Mr. Herrera and his team of Latin American and American financial aces, have persuaded an increasing number of U.S. banks to participate in its lending. Many of them, such as Central National Bank of Cleveland, will be taking their first cautious steps into Latin America.



Revolutionary new rig cuts roadbuilding time

Cutting highway construction time with a slender strand of wire? Ordinary wire has helped Fishel and Sons Construction, Inc., to reduce subgrade and final grade construction time on their Iowa road jobs by better than 70%.

Accurately strung along a roadbed, it serves as a precise guide for the Gurries Automatic Road Builder—a new Cat-powered machine that builds an almost unvarying roadbed in just a few passes. The result is significantly lower labor, machine and materials costs. Following right behind scrapers and dozers in a rough cut, the Gurries unit controls depth of cut automatically and precisely by indexing along the wire. A simple dial setting holds cross slope accuracies to 1/25 of an inch in 13 feet.

Power for the rig's material spreader and hydraulic system is provided by a compact, high-output Caterpillar D330 Diesel Engine. It burns low-grade, high-energy diesel fuel efficiently, works smoothly at full load in heat and dust, starts quickly in cold weather. Fishel expects and gets this kind of performance from the other Cat Engines in his equipment. He recently cut the fuel bill for a compactor 50% by repowering with a Cat D311. "It performs better than the old engine by quite a margin," he says, "and maintenance is a snap." Other contracting firms throughout the country such as Ball Construction Co., Danville, California; McDougal-Hartmann, Peoria, Illinois; and Thornton Construction Co., Houghton-Hancock, Michigan, are using the Cat-powered Gurries rig.

No matter how you look at it—cutting job time, boosting production, economizing on fuel or reducing repairs—Caterpillar power in your equipment means extra profit for you. Your equipment dealer will be glad to specify Cat power if you ask for it. Or if you're repowering, see your Cat Dealer for his skilled application help.

CATERPILLAR

Caterpillar and Cat are Registered Trademarks of Caterpillar Tractor Co.

Engine Division, Caterpillar Tractor Co., Peoria, Illinois, U.S.A.

Politics Stalls Boston Highway Job

Gov. John Volpe of Massachusetts and Chairman William F. Callahan of the Massachusetts Turnpike Authority remain locked in combat over which governmental body will build a 12-mile highway into Boston.

So far, Mr. Callahan ranks as technical winner. His agency has failed to start construction of the extension to the existing route, but it has also succeeded in blocking Governor Volpe's attempts to break the Authority's statutory monopoly on the route.

Twice this year—in April and in June—the Authority tried to sell its bonds; twice, investors turned up their noses. But undaunted by these rejections, Mr. Callahan still says the agency will market the bonds—about $180-million worth—this year.

After the Authority failed twice in succession to get the needed construction funds, Governor Volpe went to bat for the route as a free road built with federal-aid money. He then sought permission from the all-Democratic Executive Council of the Commonwealth to obtain a ruling from the State Supreme Judicial Court that the state had equal rights to construct the road. The Council refused the Republican governor's request.

After the Executive Council's rejection, Massachusetts Citizens' Republican State Committee joined in a move to put the freeway-tollroad question on next month's election ballot. Should the referendum attempt succeed and the voters then say "yes" to a freeway, Governor Volpe would be spared the need of asking a Democratic-controlled legislature to revoke the monopoly granted the Authority in 1955.

To gain support for the referendum, the Committee prepared a 30-page report challenging traffic and revenue estimates made by the Authority's consulting engineers. In addition, about 1,000 of the reports will go to bond underwriters, insurance companies and banks throughout the country.

A much smaller brochure, but one containing similar challenges, went to the same investors in April. Some authorities believe it contributed to failure of the Authority's first bond offering.

But while the Authority savored its preliminary political victory over Mr. Volpe, a complacency-jarring bomb went off on an unguarded flank. Newspapers reported that Jimmy Hoffa's teamsters' union was considering the purchase of bonds if the Authority made a third offering. Authority firemen manned the lines to douse the flames of a rumor that unquestionably could bring institutional investors to a sudden boil.

One such investor said it was committed the first two times for "political reasons," but if the teamsters joined in the third issue, "we might drop out."

But even should Governor Volpe win out, construction could not start much before 18 months from the date of any victory. The Public Works Department has no plans, no designs, no engineering. All this belongs to the Authority, which could refuse to part with the engineering work completed.

Home-Improvement Loan Program Trips on Statutes

The Federal Housing Administration's new home-improvement program—insured loans of up to $10,000 for as long as 20 years—so far scores a big zero.

Not one loan under the new Sections 220h and 203k has been made. Only 18 applications under Section 203k (improvement loans on properties outside urban renewal areas) rest on FHA processing desks. Applications for loans under Section 220h (loans within urban renewal areas), can't even be filed; instructions must still be printed.

Because these loans represent a second debt for the most part, they bump against complicated state regulations governing second mortgages, liens and trust deeds.

For this reason, FHA may have to print different forms and establish different administrative regulations for several states.

Interest on the loans cannot exceed 6%, and the law prohibits discounts.

Lenders may also balk at plunging heavily into the program under Section 203k, discouraged by the FHA repayment method on defaulted loans. The lender would receive debentures, not cash. Under Section 220h, however, the lender would be paid off in cash in case of default. This method of reimbursement on defaulted loans could help move this phase of the program.

Business in Brief . . .

• **Builders seek license law**—The Home Builders Association of Rhode Island will ask next year's legislature for laws licensing homebuilders so as "to smoke out the shady fellows." Bonding and competency examinations would be required.

• **Dam breeds new plant**—Permanente Cement Co., 39% owned by Kaiser Industries Corp., Oakland, Calif., may construct a $10-million plant near Helena, Mont. Big consumer of the proposed plant's product would be Yellowtail Dam on the Bighorn River, near Hardin, Mont. Kaiser is one of the participants in joint-venture dam project.

• **Gypsum-processing plant** — Flintkote Co., New York City, will construct a gypsum-processing plant at Camden, N. J. No cost estimates were announced.

• **Sweet contract due** — Henderson Sugar Refinery Inc., subsidiary of Southern Industries Corp. will soon start construction of a $12-million sugar refinery on Blakely Island in Mobile, Ala., harbor. Palmer & Baker Engineers, Inc. of Mobile, holds the design and engineering contract.

• **Engineering education** — Northrup Institute of Technology, a four-year engineering college at Inglewood, Calif., will relocate at Thousand Oaks. Outlays for new buildings in the next 15 years will hit $25 million. H. S. Gogerty Associates, Los Angeles, are the architects.

• **Cincinnati renewals** — Cincinnati heard proposals from two companies vying for sponsorship of that city's central downtown urban renewal project. Officers of F. H. McGraw & Co., Hartford, Conn., construction company, said the company would spend up to $90 million to rebuild three square blocks in the central city. Edward Keil of San Francisco earlier offered a $69-million proposal.

• **Even without federal aid**—Baltimore's Department of Education will spend $46.1 million in the next five years for public school construction.

• **Beach-side high rise**—Construction will start next year on a $3.8-million apartment building along the beach at Redondo Beach, Calif. U-Mac Management Corp., Santa Ana, Calif., is owner-developer.

BUILDING AN "UNBUILDABLE" RAILROAD

WITH GYRO-FLO POWERED

MOUNTAIN-GOAT CRAWL-IRs

The Quebec-Cartier Mining Company's 193-mile ore-carrying railroad from Port Cartier to Lake Jeannine in Labrador is being built over a terrain so steep and rugged as to make drilling and blasting almost impossible. Yet the work of removing 4 million yards of hard pre-cambrian rock is proceeding on schedule — thanks to the mountain-goat agility of 34 Ingersoll-Rand Crawl-IR drills and dependable Gyro-Flo portable air compressors.

Equipped with I-R utility air hoists for extra maneuverability, the powerful, fully-mechanized Crawl-IR drills climb around on rugged rock faces that are almost perpendicular.

The same outstanding performances and dependability that have proved such a big asset on this difficult project can be yours on any job, when you depend on Crawl-IR drills and Gyro-Flo compressors.

Ingersoll-Rand®
235A14 11 BROADWAY, NEW YORK 4, N. Y.

A CONSTANT STANDARD OF QUALITY IN EVERYTHING YOU NEED FOR DRILLING ROCK

AFL-CIO Sets a Middle Course

● Executive Council won't readmit Hoffa teamsters, but authorizes charters for defecting groups

● It preserves the semblance of labor unity by making no to-do over failure to solve jurisdictional conflicts

The AFL-CIO Executive Council, meeting in New York last week, moved with what looked like a calculated precision to enhance the public image of trade union morality without actually disturbing the status quo. The Council:

- Turned down a request for readmission of the teamsters union.
- Rejected the idea of setting up a rival union within the federation.
- Authorized the executive officers of the AFL-CIO to issue federal charters to teamster locals that leave their union and seek to join the ranks of the AFL-CIO. (About 100 unauthorized applications have come in during the past year, according to Mr. Meany.)

The Council left the teamster situation just about where it was before, and stalled for time in its search for a solution to the jurisdictional conflicts within the federation.

Some of the union building tradesmen at the Hotel Commodore, where the meeting was held, privately expressed the view that the Council's action was a logical choice between two extremes.

It does not compromise the federation's constitutional prohibition against harboring corrupt influences, they explained, and it should not provoke the teamsters into internecine warfare with affiliates of the federation. They said they expected the satisfactory and essential working relationship between the teamsters and the building trades at the local level to continue as before.

The compromise on the teamster issue was a personal triumph for AFL-CIO President George Meany, who incidentally announced on Thursday that he "sure will" be a candidate for reelection in December.

Mr. Meany has adamantly and consistently refused to condone corruption within the ranks of the AFL-CIO and has patiently waged a long campaign to curb the "divisive quarrels" that sap the strength of the labor movement.

Two proposals laid before the Council brought the teamster issue to a head. One was from Michael Quill's Transport Workers Union calling for readmission of James Hoffa and the teamsters union. The other was from Joseph Beirne, president of the Communications Workers of America, who proposed just the opposite—formation of a rival teamsters union within the federation.

Adoption of the first proposal, Mr. Meany indicated, would have been tantamount to schuttling the federation's constitution. There was no official explanation of the Council's rejection of the Beirne proposal, although it was obvious the Council felt the AFL-CIO can not afford a bitter battle with the teamsters.

Several factors, however, help to explain the final outcome:

- The AFL-CIO had already issued its December convention call, citing the need to strengthen the labor movement, "to confound its enemies" and "to reaffirm and enhance the solidarity of our movement."
- As a prelude to the Council meeting, the federation's General Board, on which the Council members sit, reportedly had a rather dismal look at the static nature of the merged federation. The general conclusion, according to Mr. Meany, is that the AFL-CIO has failed to grow the way it should and must do better in the organizing field. He said the labor movement is up against "real tough" competition on many fronts, leaving the implication that now is not the time to split the federation apart or manufacture new ammunition for anti-labor members of the legislatures or the press.
- Although building trades members of the Council attending the last meeting lined up on the anti-Hoffa, anti-corruption side, there is a strong undercurrent of opposition to disturbing the peace with the teamsters at the local level. The labor unity that now exists is kept tenuous by the still-insoluble jurisdictional conflict that exists between the craft and the industrial unions, and it is doubtful that the building trades would remain in the federation if that meant being pushed into open warfare with the teamsters union.
- With the federation beset, as it is, with jurisdictional problems, Mr. Hoffa and Mr. Quill had thrown what amounted to an impossible challenge at the AFL-CIO. In his appearance before the TWU convention the week before, Mr. Hoffa said his union would come back into the AFL-CIO only on the condition that it could organize any jurisdiction left unorganized by default of another union and not be accused of raiding for doing so. Mr. Quill, in his resolution, asked the AFL-CIO to amend its constitution to allow expulsion of any member or officer "who encourages, permits or participates in any form of raiding on another union."

The federal charter compromise on the teamster problem seems to achieve the status quo dictated by factors such as these.

Announcement of the compromise was officially couched in terms of "it is the sense of this meeting." The issuance of federal charters gives Mr. Meany no greater power than he had before. There is no indication that the AFL-CIO will encourage teamster revolts. There is no plan to tie defecting locals together within the AFL-CIO. And the compromise, of course, provides no solution to the real and practical problems that relate to representation rights in cases of defection.

The Council's action on the jurisdictional front was equally inconclusive.

Mr. Meany said the Hayes committee, which is charged with the task of drafting a plan for the settlement of internal disputes, reported "some progress but I don't want to be too optimistic." At least one more meeting of the committee, he said, will be held between now and the December convention. When pressed for more information, Mr. Meany replied: "It would make no contribution to the general problem to be more specific."

Unofficial indications are that the AFL-CIO is right back where it was on the jurisdictional problem at the time of the merger in 1955.

Walter Reuther, who heads the Industrial Union Department, has reportedly renounced the Miami Agreement, which was one step toward the reconciliation of conflicting jurisdictional claims. A Chicago meeting of the Hayes committee was reported publicly this summer to have reached agreement on another proposal. It has been privately reported, however, that no agreement was reached except "an agreement not to agree on anything."

Labor in Brief . . .

• Boulwarism – The AFL-CIO Executive Council last week condemned employer "bargaining-by-ultimatum" on a "first-and-final-take-it-or-leave-it offer" and commended the International Union of Electrical Workers for its efforts to pin an unfair labor practice charge on General Electric Co. for doing so. Outcome of the case, the Council said, "may well affect the entire future of collective bargaining."

• Protection against inter-union warfare?–In an intermediate report likely to be reversed by the National Labor Relations Board, a trial examiner has ruled that a contractor can push a collective bargaining demand for a labor contract clause indemnifying the contractor against financial loss stemming from warfare between rival unions. Case involves District 50 and a Virginia asphalt company.

• Strike settled–The Michigan Road Building Association and the Michigan Conference of Teamsters last week reached agreement on a new labor contract, ending a two-week strike that had tied up some 300 miles of highway projects. Terms were not disclosed pending union ratification of the contract.

• Two-year pact–Glaziers in Tacoma, Wash., have accepted a two-year, 32-cent labor contract that provides for a 16-cent wage increase each year.

• Safety–The Construction Division of E. I. du Pont de Nemours and Co. has, for the third time, chalked up a perfect safety record for a 12-month period. As of October 7, over 7,000 du Pont workers at 34 heavy building sites in 13 states had worked 12 consecutive months without a lost-time injury.

• Missile dispute–A labor dispute over whether members of a local of the electrical workers union at Malmstrom Air Force Base in Montana should be paid subsistence allowances and isolation pay has been dumped into the lap of President Kennedy's Missile Sites Labor Commission. A work stoppage that began October 2 had not affected the missile program as of last week.

• Industry advancement–The first direct scholarship award ($400) under the Industry Advancement Program of the highway and heavy construction industry in Cuyahoga, Lake and Geauga counties, Ohio, was made last month to a civil engineering student at Case Institute of Technology. Employer contributions support the program.

• Three-year pact–Plumbers and pipe fitters in Fort Worth, Tex., have settled, after a four-week strike, for a three-year contract that grants increases of 30 cents in wages and 10 cents in health and welfare.

NLRB Upsets Picketing Ban

The National Labor Relations Board has liberalized its interpretation of publicity picketing.

In another reversal of the old Eisenhower Board, it has ruled that a construction union can picket a construction site to protest a contractor's payment of substandard wages to his workers without violating the boycott and recognition provisions of federal labor law.

The reversal occurred in the Calumet Contractors Association case, which involved picketing by a local of the laborers union in Hammond, Ind. The contractor, a member of the association, was using workers represented by a non-AFL-CIO union.

The laborers contended that the contractor was not meeting "prevailing rates of pay and conditions" and picketed the job. Picket signs were addressed to the general public only and specifically disclaimed any intention of creating a boycott or of seeking recognition.

In February, the NLRB, then the Eisenhower Board, ruled that the picketing was illegal. It said that despite the union's protestations to the contrary, the picketing could have had one object only—and that was to force the contractor against the law to recognize and bargain with the laborers union at a time when the contractor's workers were legally represented by another union.

In reversing that decision, the Kennedy Board concluded that it is possible for a union to try to eliminate subnormal working conditions in its area without attempting to gain recognition or bargaining rights. The law, it said, does not ban picketing for such a purpose.

Supreme Court Declines To Review Agency Shop

The U. S. Supreme Court refused last week to review a Kansas Supreme Court decision banning agency shop clauses in labor contracts negotiated in Kansas.

The court's action throws the agency shop issue into considerable confusion. The issue is whether it is legal for a union and an employer to negotiate a clause that requires nonunion workers to pay the union that represents them the equivalent of the dues and fees paid by union members. The question arises under right-to-work laws that now exist in 19 states, where the union shop is banned.

Two weeks ago, the National Labor Relations Board ruled that the agency shop is legal under the Taft-Hartley Act (ENR Oct. 12, p. 87). The Supreme Court's action, however, means that the controlling test is state law–at least until such time as the court is forced to rule on the issue in some subsequent litigation. There is no uniformity in the state law or in the interpretation of it.

In the Kansas case, the Kansas court ruled that its state right-to-work law (a constitutional amendment) implicitly bans the agency shop although it specifically bans only the union shop.

The U. S. Supreme Court's refusal to review the decision promises to promote more litigation and legislative activity on both the state and federal level to clarify the issue.

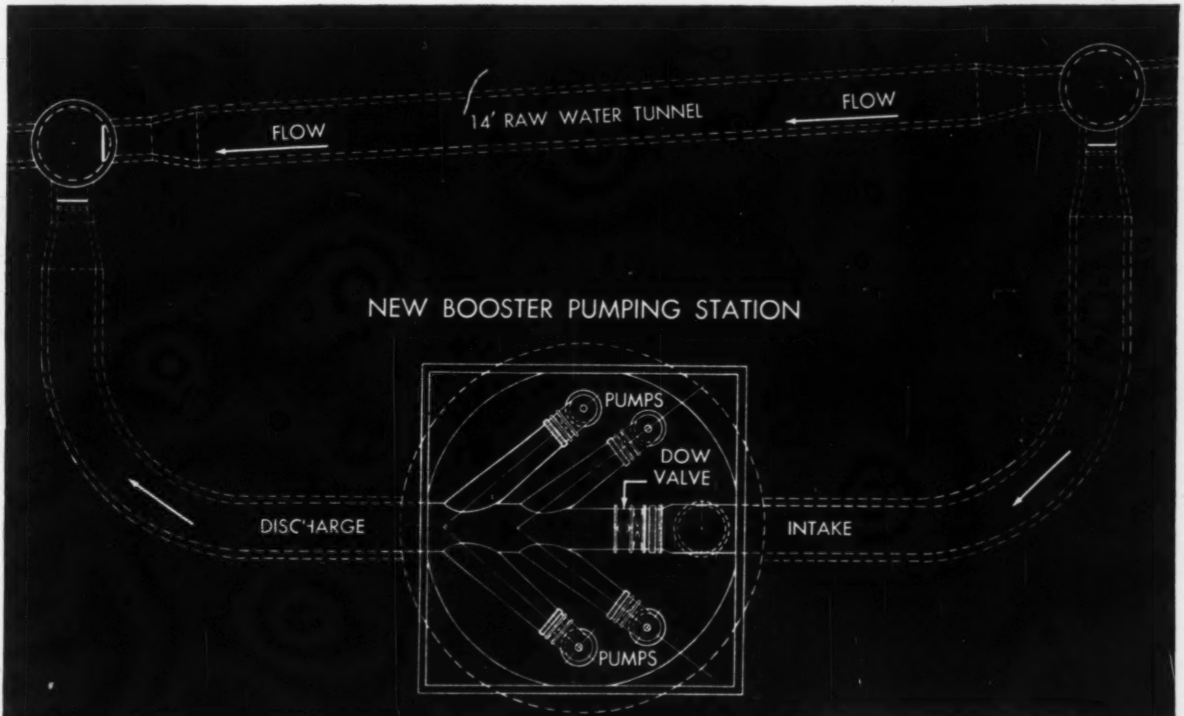
Building Trades Council Urges Non-Discrimination

The Executive Council of the AFL-CIO Building and Construction Trades Department has pledged its full support of current efforts to eliminate racial discrimination in apprenticeship training programs.

In a statement issued after its quarterly meeting in New York City earlier this month, the Council said the building trades unions, which are the "greatest source" of highly skilled craftsmen in America, have the "particular responsibility" of providing the impetus for expanded training programs to meet the growing demand for skilled workers.

The Council specifically endorsed President C. J. Haggerty's testimony in support of the Powell bill, which is designed to withdraw federal support from discriminatory apprenticeship programs (ENR Aug. 24, p. 80). The bill provides "a firm legal foundation" for the building trades' national anti-discrimination policy, the Council said.

ALLIS-CHALMERS



Each Adjustable-Blade Pump is rated to deliver 250 mgd under a 52-foot total dynamic head at 400 rpm. The pumps will be required to operate normally over a range of 22 to 40 feet tdh. A-C rubber-seated butterfly valves provide dependable pump check and suction chamber shut-off on each pump, and an A-C babbitt-seated Dow valve is mounted in pump manifold.

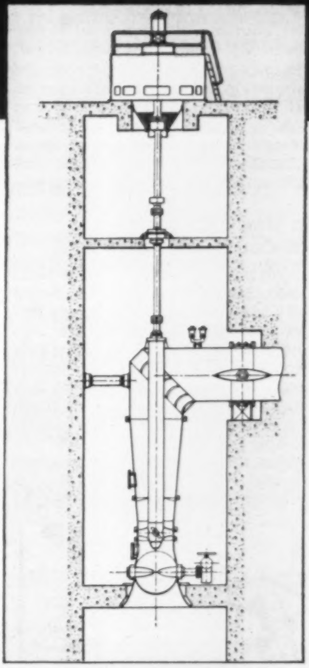
A-C Adjustable-Blade Pumps help City of Detroit augment raw water supply!

To augment the supply of raw water, Detroit, Michigan has installed four A-C Adjustable-Blade Pumps in a new booster pumping plant near the Detroit River. Pumps of this type were selected for their rapid, smooth response, under automatic control, to a wide range of flow demands.

Adjustable-Blade Pumps will vary in output to meet the gradual changes in flow requirement as compared to stepped increments of flow and possible surges which would result if fixed-blade pumps had been installed.

Two of these pumps will operate when required to raise the hydraulic grade line and supply adequate raw water to two remotely located treatment stations. As demand increases, a third pump will be used. A fourth pump is available for standby service. Pump blade angles are controlled automatically by a positioner responsive to downstream hydraulic grade line.

A-1488



You may obtain full information on A-C Adjustable and Fixed-Blade High Capacity Axial Flow Pumps and Valves by writing to Allis-Chalmers, Hydraulic Division, York, Pennsylvania.

ALPHA

BETTER CONSTRUCTION THROUGH BETTER USE OF CEMENTS

news and notes from the field

Some Basic Facts About High-Early Strength Concrete

What It Is

The simplest explanation of what is generally called "high-early strength" in concrete is a comparison of the strength of concrete made with Hi-Early (Type III) cement to that of concrete made with Regular (Type I) cement. Approximate relative strengths are shown in the table below. One point that should be kept in mind in such a comparison is that *compressive strength is not always the best measurement of concrete quality*. For instance, the highest strength concrete is not always the most durable. Many other factors also have to be considered although strength is the most commonly used yardstick for job-site quality control.

Relative Strengths of Concrete Made From Hi-Early (Type III) and Regular (Type I) Cements

	Compressive Strength	
	3 Days	28 Days
Regular Cement (Type I)	100%	100%
Hi-Early Strength Cement (Type III)	190%	130%

(Above comparisons do not apply when steam curing is employed)

Tabulation courtesy of "Guide to Better Field Practice", Concrete Construction.

In this tabulation the strength of concrete made with Regular (Type I) cement was used as 100%. It can easily be seen how concrete made with Hi-Early cement gains strength rapidly in the early stages, and how this advantage wanes in the later stages.

When to Use High-Early Strength Concrete

This decision is usually made on the basis of economics. High-early strength concrete is generally used where high strengths at early ages are necessary. Since the production of high-early strength concrete is more expensive, its convenience must offset the additional cost. The factors that determine whether high-early strength concrete is needed or desirable are usually early stripping of forms, early *use* of concrete such as heavily traveled pavements or floors and the necessity for shorter curing periods during cold weather to develop strength to resist freezing at early ages. High-early strength concrete can be produced by using Hi-Early cement or by increasing the cement factor if regular cement is used—more about this later.

For emergency jobs to provide fewer interruptions during remodeling or repairs, high-early strength concrete is often specified.

Earlier form removal is one advantage of using high-early strength concrete.

Why Hi-Early Cement Costs More

Two of the most expensive operations in the production of cement are the burning and preparation of clinker and the grinding of the clinker into finished cement. Both of these operations are more expensive in the production of Hi-Early cement plus additional costs in changing raw material proportions and raw material preparation. These factors account for the increased production costs of Hi-Early cement and its higher price.

When low temperatures are expected at early ages, high-early strength concrete shortens the period of curing and possible freezing damage.

Is Hi-Early Cement Necessary to Get High-Early Strength Concrete?

When a limited amount of high-early strength concrete is needed, it may prove expensive for a concrete producer to stock Hi-Early (Type III) cement for the job. In such a case, he might consider using larger quantities of Regular (Type I) cement to obtain the necessary early strength.

In this event, advance tests of the materials to be used in the job should be made to determine how much cement per yard will be required. To give approximations of what to expect, Alpha's research men did some preliminary testing for comparison. (Several brands of cement were used.) These are the "rules of thumb" resulting from the tests:

1. In general, the strength of relatively *lean* 5 sacks per yard Type III cement concrete can be duplicated at *1 and 3* days by using Type I cement if the cement factor is increased 2 sacks per yard to a 7-sack mix.
2. The strength of *richer*—6 sacks or more —Type III cement mixes can be duplicated at *1 and 3* days with Type I cement by increasing the cement factor by about 2½ sacks per yard to an 8½-sack mix.
3. At 7 days, the strength advantage of Type III concrete becomes less than at earlier ages. To maintain equal strengths of the concrete at 7 days, the cement factor for Type I cement would have to be increased by about 1½ sacks per yard over that of Type III cement.

It can thus be seen that it is easier to duplicate Hi-Early cement concrete strength at 7 days than at the earlier 1 and 3 days.

When Hi-Early cement is used for concrete products (block, precast beams, etc.) there are many other variables to be considered such as aggregates, steam curing and others. Alpha Field Engineers are equipped and ready to help users of our cements achieve maximum efficiency from any application of portland cements.

ALPHA
PORTLAND CEMENT COMPANY
Alpha Building, Easton, Pa.

Legal

The Miller Act Requires Timely Notice of Claims

Federal law requires all contractors performing work for the United States Government to furnish bonds guarantying the payment for all labor and materials used in the performance of the work.

This statute, known as the Miller Act, requires parties making claims against surety companies to file a registered mail notice of claim within 90 days from the time the last material or labor is furnished. The giving, by a subcontractor of notice to the prime contractor, within the 90-day period is a requisite to the right to recover.[1]

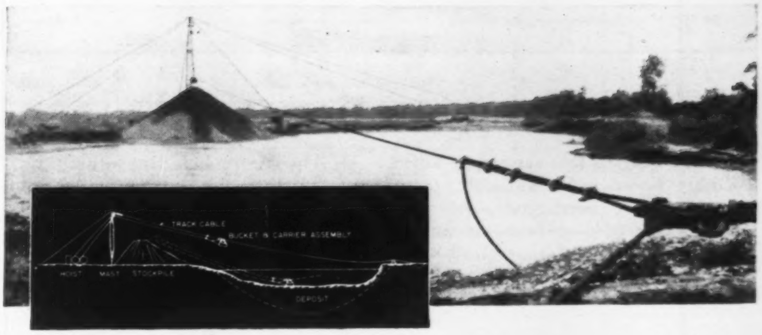
In one case,[2] the court held that where a subcontractor had performed the last labor and had furnished the last supplies during the early part of 1954, and had corrected errors such as missing bolts and failure to close these holes without charge in June 1955, notice by the subcontractor to the prime contractor by registered mail in June 1955 demanding payment of the balance due was not timely. The subcontractor could not recover on the prime contractor's payment bond.

In another case,[3] a supplier brought an action against the company that had furnished a payment bond for the prime contractor to recover an unpaid balance due the supplier for steel furnished to a subcontractor. The court held that where the supplier gave oral notice, as well as duplicate invoices of goods supplied, to a representative of the prime contractor and had notified him of the subcontractor's default by registered mail within the statutory period, the notice was sufficient.

(1) Tecot Electric Supply Company v. New Amsterdam Casualty Company, 185 F. Supp. 310.
(2) McGregor Architectural Iron Co. v. Merritt-Chapman & Scott Corp., 185 F. Supp. 381.
(3) John T. Evanick & Co. v. Merritt-Chapman & Scott Corp., 185 F. Supp. 587.

(Legal continued on p. 130)

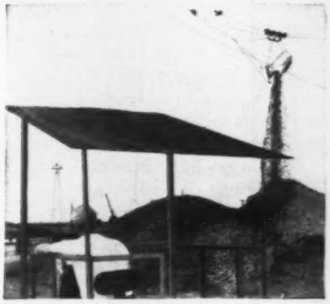
These summaries of court decisions are prepared by I. Vernon Werbin, Esq., New York attorney and licensed professional engineer, who is author of the following books published by McGraw-Hill Book Company, Inc.: *Legal Phases of Construction Contracts; Legal Guide for Contractors, Architects and Engineers;* and *Legal Cases for Contractors, Architects and Engineers.*



FROM PIT TO STOCKPILE...

DIG and HAUL for 8¢ per yd.

WITH A SAUERMAN SLACKLINE



Operating costs as low as 8¢ per yd. for labor, power and maintenance are reported by Slackline Cableway owners when digging free-caving material at average depth and haul distances.

These low costs are achieved by using just one machine—the new Sauerman Slackline Cableway. Multiple equipment is not needed to supply your required tonnage. For example, on an average haul and digging depth, a single medium size machine will charge a 200 tph. plant.

The high Slackline mast permits building a large pile which can supply plant demands through a plate feeder and tunnel conveyor, front-end loader or clamshell. The new Sauerman torque converter diesel-hoist automatically matches power to load demands and is designed for continuous duty. Fluid drive cushions out shock loads to reduce fuel and maintenance costs, extend cable life.

Increasing land values and depleting resources make it necessary to get all the material out of your deposit. You can do this with a Sauerman Slackline. The machine will dig from ground level to deep under water and keep your plant running additional years at the lowest possible operating cost. Several pits are now operating Slacklines on 1000-ft. spans with average hauls of 500 to 700 ft. and from 100-ft. depths.

Write or call, giving your tonnage requirements, depth and length of deposit—if available. We will promptly supply more information on Slackline Cableways, and show you how to *save with a Sauerman.*

SAUERMAN BROS., INC. 632 SO. 28th AVE. BELLWOOD, ILL.
LInden 4-4892 • Cable CABEX—Bellwood, Illinois

Crescent Scrapers • Slackline and Tautline Cableways • Durolite Blocks

Willful Exaggeration Voids Lien

A mechanic's lien cannot be killed simply because the amount of the lien is stated inaccurately. But willful exaggeration of the amount of the lien is a different story—that voids the lien.

A New York court has ruled that the state law distinguishes between honest and willful mistakes in filing liens. The law seeks to punish only willful exaggerations, the court said.

The case before the court involved foreclosure of a mechanic's lien for excavation work. The work was performed under a $13,800 subcontract covering "all labor, equipment and materials (explosives) to perform all excavation and disposal of waste materials." The lien, however, was filed in the amount of $36,990.

The subcontractor who filed the lien claimed that before it signed the contract the general contractor had told him that the material to be removed included 220 cubic yards of rock. All rock in excess of that, the subcontractor said, was to be paid for on a unit price basis. Some 1,400 cubic yards of rock were removed, pushing the value of the work up to $36,000, according to the subcontractor.

The general contractor denied any oral agreement for extra payment. He asked that the lien be declared void and requested damages for the exaggeration of the lien's amount.

The court held that the contract was clear, unambiguous and uncomplicated. It said the subcontractor was to perform all the work called for by its contract for the sum of $13,800. Since the contract did not contain any mention of added payments nor allude to any prior oral agreement, it added, the subcontractor's lien should be limited to the contract price of $13,800.

The general contractor's claim for damages was dismissed. The court held that the subcontractor was confused and honestly believed that it would be paid a larger sum than the contract price.

The court stated: "In order to vitiate a lien there must be willful exaggeration. Inaccuracy in amount of lien, if no exaggeration is intended, does not void a mechanic's lien; willfulness must be shown (Roshirt, Inc. v. Rosenstock, 138 Misc. 515, 247 N.Y.S. 420; Sullivan v. O'Dea Realty Corp., 153 Misc. 634, 274 N.Y.S. 760; Yonkers Builders Supply Co. v. Petro Luciano & Son, 269 N.Y. 171, 199 N.E. 45, 102 A.L.R. 759)."

The court held that there was no proof that the subcontractor willfully exaggerated the amount of the lien due him. The court, further stated: "Sections 39 and 39-a of the Lien Law are intended to protect the owner or contractor from fictitious, groundless and fraudulent liens by unscrupulous lienors and not to bring within the prohibition or penalties of the statute honest difference of opinion as to the amount due or inaccuracy in the amount of the lien so long as no exaggeration was intended. The law was framed to punish willful exaggeration and nothing else. (Goldberger-Raabin, Inc. v. 74 Second Ave. Corp., 252 N.Y. 336, 169 N.E. 405; Clemente Construction Corp. v. P. T. Cox Construction Co., 172 Misc. 904, 16 N.Y.S. 2d 483).

(1) American Construction Corp. v. Finlay, 200 N.Y.S. 2d 993, N.Y. Supreme Court, May 21, 1960.

Foreign Law Was Applied To Employment Contract

The rights and duties imposed by an employment contract for foreign service may be determined under the law of the country of employment.

That was the basis of the decision in a recent contract dispute involving an engineer who was hired for construction work in Venezuela.

The engineer has sued his employer to recover damages for breach of an employment contract.

The contract provided that under Venezuela law, the employer could terminate the contract by giving notice and paying certain expenses including expenses of returning to this country.

The evidence produced at the trial indicated that the engineer had been notified of the termination of the employment contract and received full pay and allowances until the time he left for the United States. In addition, he was given one weeks pay, five days' unemployment compensation, five days' vacation pay, four days' pay covering travel time and cost of coming back to the United States.

The court held that the contract was to be interpreted under the law of the country where the work was to be performed, and since all these requirements had been met satisfactorily the action was dismissed.[1]

(1) Klekamp v. Blaw-Knox Company, 179 F. Supp. 328, U. S. District Court of California, December 23, 1959.

OFFICIAL PROPOSALS

Bids: November 10, 1961

Delaware River Port Authority of the Commonwealth of Pennsylvania and the State of New Jersey

Administration Building
Camden, New Jersey
BENJAMIN FRANKLIN BRIDGE
CONTRACT NO. 32-A—
GENERAL CONSTRUCTION WORK
CONTRACT NO. 32-C—
PLUMBING WORK
CONTRACT NO. 32-D—
HEATING, VENTILATING AND AIR CONDITIONING
CONTRACT NO. 32-E—
ELECTRICAL WORK

Sealed bids will be received on the following four (4) Contracts for the Work of Alterations and Additions to the Administration Building, Northwest Corner of Linden and Sixth Streets, Camden, New Jersey.

Contract No. 32-A—
GENERAL CONSTRUCTION WORK
Contract No. 32-C—
PLUMBING WORK
Contract No. 32-D—
HEATING, VENTILATING AND AIR CONDITIONING
Contract No. 32-E—
ELECTRICAL WORK

at the office of the Director of Engineering of the Delaware River Port Authority, Administration Building, Benjamin Franklin Bridge Plaza, Camden, New Jersey, until 12:00 Noon, Eastern Standard Time, Friday, November 10, 1961, at which place and time they will be publicly opened and read by the Authority.

A more complete description of the work and full information for the bidders is given in the Contract Documents and Specifications for these Contracts, which may be obtained upon deposit of $25.00 per set. Deposits will be refunded by the Authority to anyone submitting a bid (limit $50.00 for 2 sets) if the Plans and Specifications are returned in good condition within ten days of the date of receipt of bids. Deposits will under no circumstances be refunded to individuals or companies not submitting bids.

Each proposal must be accompanied by a certified check:

For Contract No. 32-A—
GENERAL CONST. WORK...$25,000
For Contract No. 32-C—
PLUMBING WORK ....$ 2,000
For Contract No. 32-D—
HEATING, VENTILATING
AND AIR CONDITIONING...$ 2,000
For Contract No. 32-E—
ELECTRICAL WORK

This certified check should be made payable to the Delaware River Port Authority and be drawn upon a National or State Bank or Trust Company having an office or place of business either in Philadelphia, Pennsylvania, or Camden, New Jersey, together with a financial statement and a list of comparable work successfully completed, all of which must not be enclosed with the sealed bid but handed in separately. The surety's consent must be shown. The bidder to whom the Contract is awarded will be required to furnish a Performance and Labor and Materialman's Bond in the sum of 100 percent.

The Authority will afford prospective bidders an opportunity to inspect the site of the work.

The Authority reserves the right to waive any informalities in the bids received, to reject any or all bids and to award the Contract only to those experienced in this class of work and to the bidder whose proposal is deemed by the Authority to be most advantageous to the public interest.

DELAWARE RIVER PORT AUTHORITY
C. H. McWILLIAMS
SECRETARY
10/16/61

Northern Pacific Railway Company. Sealed bids will be received at St. Paul, Minnesota until noon November 6, 1961, for furnishing labor and materials for raising a double track railroad bridge, constructing two new piers, removing 2 spans of deck plate girders, and erecting a new 192 ft. truss span. Bridge is over the Mississippi River in Minneapolis, Minnesota. Principal items are 31,000 lin. ft. timber piling, 2300 cu. yds. concrete and 1,345,000 lbs. structural steel. For particulars, address: M. O. Woxland, Bridge Engineer, Northern Pacific Railway, St. Paul 1, Minnesota.

OFFICIAL PROPOSALS

RATE: The rate for Official Proposal advertising is $2.70 per line or fraction set solid. Where the advertisement is set other than solid, the space is measured by total space occupied and charged on basis of 12 lines to the inch.

CLOSING DATE: Friday 10:30 A.M. for issue dated the following Thursday.
SEND COPY TO: Official Proposal Division,
Engineering News-Record
Class. Adv. Div.,
P. O. Box 12, N. Y. 36, N. Y.

Bids: October 26, 1961

New York State Road Work

NOTICE TO CONTRACTORS: STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.—Pursuant to the provisions of the Highway Law, and special provisions for projects financed with Federal Aid Funds, sealed proposals will be received until ten-thirty o'clock A.M., advanced standard time, which is nine-thirty o'clock A.M., eastern standard time, on the 26th day of October 1961, by Henry A. Cohen, Director, Bureau of Contracts, 12th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y., for the following projects:

County	Contract No.	Name	Miles	Type	Deposit	Estimated Cost of Work
DISTRICT No. 1, F. J. Fuller, District Engineer, 353 Broadway, Albany 1, New York						
Saratoga (Int. Trg. Rte. 87)	FISH 61-20	Interstate Route 502, Saratoga Springs to Lake Elizabeth Proj. I-IG-87-3(47)	4.19 (3.29 Acc.)	9" Cement Concrete Pavt. 2 @ 24' Var.=5.31 Mi.; Asphalt Conc.=2.07 Mi.; Misc. Work=0.10 Mi.; 2 Hwy. Gr. Seps. Comp. Plate Girder; 4 Hwy Gr. Seps. Comp. Beam; 2 RR Gr. Seps. Comp. Beam	$265,000 Plans $10	$4,812,000
Schenectady (Int. Trg. Rte. 890)	FITS 61-21	Interstate Route Connection 550 (Michigan Ave. to N. Y. State Thruway, FIC 60-18, FISH 60-9, FISH 58-20). Proj. I-890-5(18)	1.63 (0.62 Acc.)	Traffic Signs and Delineators	$1,600 Plans $5	29,000
DISTRICT No. 3, E. E. Towlson, District Engineer, 333 E. Washington Street, Syracuse, New York						
Oswego	FASS 61-13	Salisbury Street (County Road 48) (Sandy Creek and Lacona) Proj. S-617(1)	0.85 (0.06 Acc.)	Asphalt Concrete Ty. 1A	$13,000 Plans $5	237,000
Seneca (Rte. 96)	FARC 61-30	Waterloo Village (Fayette St.) S.H. 1399; Waterloo Vil., S.H. 1211; Waterloo Vil., S.H. 1211A Proj. F-626(7)	0.47	Asphalt Concrete Ty. 2A I-Beam Bridge Widening 2 Prestressed Concrete Bridges	$25,000 Plans $5	456,000
DISTRICT No. 4, B. F. Perry, District Engineer, Barge Canal Terminal, Rochester 1, New York						
Monroe (Int. Trg. Rte. 490)	FISH 61-15 FARAE 61-1 FARC 61-83	Int. Rte. Conn. 580 Rochester Western Expressway (West Side Drive to Buffalo Road); Rochester Airport Expressway, Part 1 (FAI Conn. 580 to Chili Avenue); Chili Rd. Part 1, S.H. 254; Chili Rd. Part 2, S.H. 255 Proj. I-IG-490-2(22); U-1103(3); U-231(18)	2.69 (3.36 Acc.)	9" Cement Conc. Pavt., 2 @ 24' Var.=4.7 Mi.; Asph. Concrete Type 1A=1.19 Mi.; Misc. Work=0.16 Mi.; 4 Brs.—Twin Reinf. Conc. Closed Box; 5 Hwy. Gr. Seps. Comp. I-Beam; 2 RR Gr. Seps. Comp. Plate Girder	$230,000 Plans $10	4,013,000
Monroe (Int. Trg. Rte. 490)	FIRC 61-147	Int. Rte. Conn. 580 (Rochester-Bushnell Basin, Parts 1 & 2, FASH 54-1 & FISH 56-9) Proj. I-490-2(30)	5.19	Chain Link Fencing	$8,000 Plans $5	149,000
Monroe (Int. Trg. Rte. 490)	FIC 61-19	Int. Rte. Conn. 580 Rochester Western Expressway (Rochester City Line to Mount Read Blvd.) Proj. I-490-2(26)	0.87 (1.19 Acc.)	9" Cement Conc. Pavt. 2 @ 36' & 48'=0.73 Mi.; Asphalt Conc.=1.19 Mi.; R.R. G.S. Plate Girder Hwy. Gr. Sep. Comp. I-Beam	$80,000 Plans $5	1,463,000
Monroe (Int. Trg. Rte. 490)	FIM 61-6	Int. Rte. Conn. 580 (Rochester-Bushnell Basin Pt. 3, FISH 58-16) Proj. I-490-2(31)	0.05	Sprayed Urethane Bridge Insulation	$1,200 Plans $5	21,000
Orleans	FASS 61-12	West Lee Street Rd., County Rds. Nos. 92 & 81 Proj. S-242(4)	4.74	Asphalt Concrete	$23,000 Plans $5	411,000
DISTRICT No. 8, M. N. Sinacori, District Engineer, Pleasant Valley Road, Poughkeepsie, New York						
Dutchess (Rtes. 22, 55)	FATS 61-23	Billings-Poughquag, S.H. 8525; Stonehouse-Pawling, S.H. 1677; Pawling-Patterson, S.H. 343; Pawling Village, S.H. 5009; Stonehouse-Stormville, S.H. 1162 Proj. F-1025(4); F-625(6); F-350(25)	8.23 (0.57 Acc.)	Traffic Signs	$2,000 Plans $5	36,000
DISTRICT No. 9, J. C. Federick, District Engineer, 71 Frederick Street, Binghamton, New York						
Sullivan (Rte. 17)	FARC 61-132	Liberty-County Line, Part 1, S.H. 5223 Liberty-County Line, Part 2, S.H. 5234 Proj. F-336(17)	3.94 (3.76 Acc.)	9" Cement Concrete Pavt., 2 @ 24' W.=3.38 Mi.; Asphalt Conc.=2.93 Mi.; Top Course Broken Stone B.D.S.T.=1.28 Mi.; Fdn. Course Granular Material=0.11 Mi.; 3 Hwy. Gr. Seps. Comp. I-Beam	$245,000 Plans $5	4,475,000
DISTRICT No. 10, A. M. Sarr, District Engineer, 325 W. Main Street, Babylon, L. I., New York						
Bronx (Int. Trg. Rte. 78)	FICBERC 61-1 FITNERC 61-1	Int. Rte. Conn. 513, Contract 5 Cross Bronx Expressway: Throgs Neck Expressway Proj. I-78-1(65)	2.65 (5.04 Acc.)	Roadside Development	$8,000 Plans $5	147,000
Nassau (Rte. 27)	RC 61-150	Conduit Boulevard, Part 3, S.H. 1699A	1.58	Reducing Width of Mall	$6,000 Plans $5	108,000
Queens (Int. Trg. Rte. 678)	FIWE 61-2	Int. Rte. Conn. 515 Whitestone Expressway—Contract 2 (Flushing River Bridge and Approaches) Proj. EI-678-1(67)	0.60 (0.24 Acc.)	Plate Girder Bridge, Approaches & Ramps, Conc. Deck Rdway.=0.72 Mi.; Conc. Pavement=0.10 Mi.; Misc. Work=0.02 Mi.	$350,000 Plans $10	6,069,000
Queens	FAVWE 61-4	Van Wyck Expwy. Ext., Contract 3, (Kew Gardens Interchange) Proj. U-1085(22)	0.57 (1.03 Acc.)	9" Cement Concrete Pvt., 2 @ 48' Var.=1.26 Mi.; Asphalt Conc.=0.15 Mi.; Misc. Work=0.19 Mi.; 3 Comp. I-Beam & Plate Gird. Viads.; 2 Comp. I-Beam Viads.; 1 Hwy. Gr. Sep. Comp. I-Beam; 1 Ped. Overpass Plate Girder	$230,000 Plans $10	4,171,000
Queens (Int. Trg. Rte. 495)	FAGCP 61-5 FIHHE 61-2	Grand Central Pkwy., Section 2, Contract 1 (Roosevelt Ave. to 77th Avenue), Int. Rte. Conn. 514 (Grand Central Pkwy.-Horace Harding Interchange) Proj. U-UG-899(5); I-495-1(48)	3.72 (5.42 Acc.)	8" & 9" Cement Conc. Pavement, 2 @ 48'=3.14 Mi.; 8" & 9" Cement Conc. Pavt. Var.=4.75 Mi.; Asph. Conc.=0.67 Mi.; Misc. Work=0.58 Mi.; Riveted Steel Rig. Fr. Structure Welded Thru Pl. Gird. Struct.; 2 Ped. Overpass Comp. WF Beam; 2 Ped. Overpass WF Beam; 1 Ped. Overpass Welded Plate Girder; 3 Comp. WF Cantilever Suspension; 1 WF Beam Plus Alterations; Widen Exist. WF Beam Br.	$570,000 Plans $10	10,377,000
Queens	FAGCP 61-6	Grand Central Pkwy., Section 1, Contract 1 (Brooklyn-Queens Expwy. to Northern Blvd. Interchange) Proj. U-899(4)	2.67 (4.23 Acc.)	8" Cement Conc. Pavt., 2 @ 48' Var.=4.47 Mi. Asph. Concrete Pavement=2.29 Mi.; Misc. Work=0.14 Mi.; 3 Hwy. Gr. Seps. Comp. I-Beam; 3 Ped. Overpass I-Beam Rehabilitation of I-Beam and Conc. Rigid Fr. Underpass; Rehabilitation of Comp. I-Beam & Girder Viaduct	$650,000 Plans $10	11,290,000

(Continued on following page)

OFFICIAL PROPOSALS
(Continued from preceding page)

Any projects in this letting that are on the Federal Aid highway systems are subject to the provisions of the "Federal Aid Highway Act. of 1956", being Public Law 627, 84th Congress, approved June 29, 1956, and are also subject to the applicable New York State statutes.

In compliance with the provisions of Section 115 (Prevailing Rate of Wage), Public Law 627, the minimum wages to be paid laborers and mechanics are included in wage schedules that are set out in the bid proposal.

Maps, plans, specifications and proposal forms may be seen and obtained at the office of the State Department of Public Works, Bureau of Contracts, Albany, N. Y., and at the office of the District Engineers noted above, and may also be seen at the office of the State Department of Public Works, 270 Broadway, New York City.

If the deposit is $10.00 or more, full refund for one copy of the plans and specifications will be made to a bidder for the particular project, if such plans and specifications are returned in good condition within 30 days after the award of the contract or after the rejection of the proposal. The successful bidder is not required to return the copy of the plans and specifications in order to be entitled to such refund. If the deposit is $10.00 or more, partial refund will be made for the return of all other copies of plans and specifications in good condition within 30 days after the award of the contract or the rejection of the proposal.

Special attention of bidders is called to "Information for Bidders" in the Public Works Specifications, and to the special provisions applying to projects financed with federal funds. Award of a contract is subject to priorities and allocations under the Defense Production Act of 1950, as Amended, and all regulations issued thereunder.

Proposal for each contract must be submitted in a separate sealed envelope with the name and number of the contract plainly endorsed on the outside of the envelope. Each proposal must be accompanied by draft or certified check payable to the order of the "State of New York, Department of Public Works" for the sum as specified in the advertisement and the proposal. The retention and disposal of the bid deposit, the execution of the contract and bond shall conform to the provisions of the Highway Law, as set forth in the "Information for Bidders".

The right is reserved to reject any or all bids.

J. BURCH McMORRAN
SUPT. OF PUBLIC WORKS

Bids: See Advertisement

The Port of New York Authority

Sealed proposals for the following work will be received at the Office of the Chief Engineer, Room 1100, 111 Eighth Avenue, New York 11, New York, until 2:30 P.M. on date indicated, at which time said proposals will be opened and read in Room 1108.

Contract EP-110.023—Elizabeth Port Authority Piers—Berths 50 and 58—Anchorages and Sheeting Extensions—Deposit $30.00 per set of documents—Bids will be received until 2:30 P.M. on Thursday, November 2, 1961.

Contract BP-150.019—Brooklyn Port Authority Piers—Pier 1—Fence Repairs and Bumper Logs—No Deposit Required—Bids will be received until 2:30 P.M. on Thursday, November 9, 1961.

Contract GWB-190.048—George Washington Bridge—Lower Level Expansion—New Jersey Approach—Phase 8—Deposit $30.00 per set of documents—Bids will be received until 2:30 on Tuesday, November 21, 1961.

Contract Documents may be seen at the office of the Assistant Chief Engineer for Design, Room 1115, 111 Eighth Avenue, New York 11, N. Y. Documents will be furnished upon receipt of the above deposit (each set including one copy of the Contract Drawings) for not more than three sets to any one company. Additional sets will be furnished upon payment of an amount for each set equal to the deposit indicated above, which payment is not returnable. Deposits and payments shall be delivered to the Treasury Department, Room 1001, where a receipt will be issued. The receipt shall be delivered to Room 1115, where the documents will be furnished.

Those who have submitted a bid on the contract directly to the Authority will receive a refund of the deposit for each set of documents, not exceeding three, returned within forty days after the opening of proposals. Those who have submitted a bid will receive a refund of one-half of the deposit for each set of documents, not exceeding three returned within forty days after the opening of proposals.

THE PORT OF NEW YORK AUTHORITY
S. Sloan Colt, Chairman
New York, October 19, 1961

Bids: November 9, 1961

City of Grand Rapids, Michigan

ADVERTISEMENT FOR BIDS

Sealed proposals for Architectural Trades Work, Part One, Lakeside Filtration Plant for the City of Grand Rapids, Michigan, will be received at the Office of the City Purchasing Agent, City Hall, Grand Rapids, Michigan, until 10:00 o'clock A. M., Eastern Standard Time, on November 9, 1961, and beginning at 10:00 o'clock A. M. Eastern Standard Time on said date will be publicly opened and read in the Commission Room in said City Hall.

The work for which proposals are requested is as follows:

Architectural Trades Work only, for filter building, chemical building, and high lift pumping stations as shown on drawings and described in the specifications for this contract. The initial plant capacity will be 60 MGD, the ultimate future capacity 200 MGD.

Lump sum proposals will be received for this part of the project. The City reserves the right to reject any or all bids, to waive irregularities and technical defects contained therein, and to determine which bid is lowest and best, and to enter into a Contract as it may deem to be to the best interest of the City.

Copies of the Contract Documents (Notice and Instruction to Bidders, Proposals and Bond Forms, Specifications, etc.) are on file in the Office of the City Purchasing Agent in City Hall and may be examined by prospective bidders.

The drawings and specifications, together with all necessary forms and other contract documents for bidders, may be examined at the Builders and Traders Exchange—Grand Rapids, Muskegon, Lansing and Detroit, Michigan.

General Contractors may obtain one set of drawings and specifications from the consulting engineer, J. & G. Daverman Company, 924 Grandville Avenue, S.W., Grand Rapids 9, Michigan, upon receipt of deposit of Thirty-five (35) Dollars, which is refundable only when drawings and specifications are returned intact and without marks within five (5) days after bids are due. Drawings and specifications for all bidders shall be returned immediately if bidder decides not to tender a proposal. A charge of Ten (10) Dollars per set of drawings and specifications will be made to all parties holding said drawings and specifications until date for opening bids without tentering a bid. Extra sets of drawings and specifications or parts thereof for Contractors, Subcontractors or material dealers will be furnished at the Engineer's option upon receipt of deposit of Thirty-five (35) Dollars, of which Fifteen (15) Dollars will be refundable when drawings and specifications are returned.

Before issuing Bidding Documents to a prospective bidder, the Consulting Engineer, J. & G. Daverman Company, hereinafter called the "Engineer," may request said prospective bidder to submit statements fully setting forth financial resources, adequacy of plant and equipment, organization and technical experience. Upon receiving this information, the Engineer will review same and advise the prospective bidder whether or not he is eligible to bid. The City reserves the right to issue plans only to those bidders who pre-qualify for prospective work.

JAMES E. BAKER
Pur. Agent
City of Grand Rapids

Bids: November 9, 1961

City of Grand Rapids, Michigan

ADVERTISEMENT FOR BIDS

Sealed proposals for Mechanical Work, Part One, Lakeside Filtration Plant for the City of Grand Rapids, Michigan, will be received at the Office of the City Purchasing Agent, City Hall, Grand Rapids, Michigan, until 10:00 o'clock A.M., Eastern Standard Time, on November 9, 1961, and beginning at 10:00 o'clock A.M. Eastern Standard Time on said date will be publicly opened and read in the Commission Room in said City Hall.

The work for which proposals are requested is as follows:

Plumbing
Heating & Ventilating
Dehumidification
Interior Water Piping
Chemical Feeder Installation
Chemical Feed Piping
Pump Installation
Lime Storage Bin
Miscellaneous Mechanical
Painting of Mechanicals

The initial plant capacity will be 60 MGD: the ultimate future capacity 200 MGD.

Lump sum proposals will be received for this part of the project. The City reserves the right to reject any or all bids, to waive irregularities and technical defects contained therein and to determine which bid is lowest and best and to enter into a Contract as it may deem to be to the best interest of the City.

Copies of the Contract Documents (Notice and Instructions to Bidders, Proposals and Bond Forms, Specifications, etc.) are on file in the Office of the City Engineer and City Purchasing Agent in the City Hall and may be examined by prospective bidders.

The drawings and specifications, together with all necessary forms and other contract documents for bidders may be examined at the Builders and Traders Exchange, Grand Rapids. Muskegon, Lansing, and Detroit, Michigan.

Prime Mechanical Contractors may obtain one set of drawings and specifications from the consulting engineer, J. & G. Daverman Company, 924 Grandville Avenue, S. W., Grand Rapids 9, Michigan, upon receipt of deposit of thirty-five dollars ($35.00), which is refundable only when drawings and specifications are returned intact and without marks within five (5) days after bids are due. Drawings and specifications for all bidders shall be returned immediately if bidder decides not to tender a proposal. A charge of ten dollars ($10.00) per set of drawings and specifications will be made to all parties holding said drawings and specifications until date for opening bids without tendering a bid. Extra sets of drawings and specifications or parts thereof for Contractors, Sub-contractors or material dealers will be furnished at the Engineer's option upon receipt of deposit of thirty-five dollars ($35.00) of which fifteen dollars ($15.00) will be refundable when drawings and specifications are returned.

Before issuing Bidding Documents to a prospective bidder, the Consulting Engineer, J. & G. Daverman Company, hereinafter called the "Engineer", may request said prospective bidder to submit statements fully setting forth financial resources, adequacy of plant and equipment, organization and technical experience. Upon receiving this information, the Engineer will review same and advise the prospective bidder whether or not he is eligible to bid.

The City reserves the right to issue plans only to those bidders who prequalify for prospective work.

City of Grand Rapids
JAMES E. BAKER
Pur. Agent

OFFICIAL PROPOSAL

RATE: $2.70 per line (or fractional) per insertion.

CLOSING DATE: 10.30 a.m. Friday for issue out following Thursday.

SEND COPY: Official Proposal Division, Class Ad Div.; Engineering News-Record, P. O. Box 12, New York 36, N. Y.

Bids: November 6, 1961

Monroe County Sewer Agency

Sealed bids for the construction of Sanitary Sewers, Section E-4, for the Gates-Chili-Ogden Sewer District will be received by the Monroe County Sewer Agency, at its office at 307 Terminal Building, 65 Broad Street, Rochester 14, New York, until 11:00 A.M., E.S.T. on the 6th day of November 1961.

Bidding forms can be obtained and plans and specifications examined at the office of the Monroe County Sewer Agency or at the office of The Lozier Company, Engineers, 10 Gibbs Street, Rochester, New York.

Copies of plans and specifications for Section E-4 may be obtained upon the payment of twenty dollars ($20.00).

The full amount charged will be returned to all bidders who return the complete plans and specifications in an acceptable condition within thirty (30) days from the date of award to the successful contractor. Half of the amount charged will be returned to non-bidders who return the complete plans and specifications in an acceptable condition within thirty (30) days from the date of award to the successful contractor. Checks or money orders should be made payable to the order of Gordon A. Howe, Monroe County Director of Finance.

The work consists of the construction of:

Section "E-4"—Approximately 7.8 miles of Sanitary Sewer and Sanitary Sewer Force Main, 4" to 15" with all appurtenances.

COUNTY OF MONROE
By: C. A. Bennett,
Purchasing Agent

October 16, 17, 18, 1961

District of Columbia—Signing, Anacostia Freeway—Dept. of Highways and Traffic, D. C., October 2, 1961. SIGNING OF ANACOSTIA FREEWAY, E. CAP. ST. TO PENN. AVE. (Federal Aid Project No. U-45(25) and CHESAPEAKE ST. TO D. C. LINE, Federal Aid Interstate Project No. I-295-2(26)0, Invitation No. C-6221-H. (Wage rates have been predetermined by Labor Dept.) This project is located in southeastern section of the District of Columbia, and consists of the signing, reflective pavement marking, and inc. work connected therewith, for the sections of the Anacostia Freeway from E. Cap. St. to Penn. Ave.; the Penn. Ave. Interchange; and the section of the Anacostia Freeway from Chesapeake St. to the D. C. Line. Bid forms, plans and specifications are now available from Supervisor, Bid and Contract Division, Procurement Office, D. C., Room 404, 499 Penn. Ave., N.W., upon deposit of a certified check for $25.00 per set, payable to D. C. Treasurer (Phone NA 8-6000, Ext. 448). SEALED BIDS to be opened 3:00 PM, EST, October 31, 1961, in Room 424, 499 Penn. Ave., N.W.

U. S. Government

DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. DC-5681) will be received at McCook, Nebraska, until 10 a.m. Central Standard Time, November 21, 1961, for furnishing labor and materials for Red Willow Creek Diversion Dam and Red Willow Canal and Settling Basin—Station 2+09.86 to Station 8+00—Frenchman-Cambridge Division, Nebraska, Missouri River Basin Project. Location near McCook, Nebraska in Red Willow County. Principal items are 82,600 cu. yds. excavation; 2,480 cu. yds. concrete; 30,500 cu. yds. compacting embankment; and other work. Completion time 450 days. For particulars, address Bureau of Reclamation, P. O. Box 737, McCook, Nebraska; Building 46, Denver Federal Center, Denver 25, Colorado; or Building 53, Denver Federal Center, Denver 25, Colorado. Floyd E. Dominy, Commissioner.

Sealed bids for central airconditioning at the U. S. Post Office & Courthouse, Wilmington, Delaware, Project No. 00840 will be received until 2:00 P.M. E.S.T. November 6, 1961; and then publicly opened. Bidding material may be obtained after 10-17-61 from the Business Service Center, General Services Administration, 250 Hudson Street, New York 13, N. Y., from the Custodian of the Building where the work is to be done or from the Chief, Philadelphia Field Office, D & C Div., PBS., Rm. 902, U. S. Custom House & Appraisers Stores, 2nd and Chestnut Streets, Philadelphia 6, Pa.

INDUS BASIN PROJECT

WATER AND POWER DEVELOPMENT AUTHORITY

ADVANCE NOTICE

OF

INTENT TO INVITE TENDERS

FOR THE

CONSTRUCTION OF CANALS AND APPURTENANT WORKS

The above Authority is undertaking the construction of a number of large canals in West Pakistan. Their construction is being financed through the Indus Basin Development Fund, the operation of which will be administered by the International Bank for Reconstruction and Development (World Bank). The canals which form a part of the works embodied in the Indus Basin Settlement Plan will have a total length of about 390 miles and involve approximately 345 million cubic yards of excavation, as well as the construction of several hundred bridges and other canal structures.

The work will be divided into eight or more individual projects. Prospective contractors invited to tender on the first three canals have either already been prequalified or are being prequalified by action presently under way.

The fourth Link Canal to be undertaken will be the Qadirabad-Balloki Link Canal. This canal will extend from Qadirabad on the Chenab River to Balloki on the Ravi River and have a total length of approximately 78 miles in addition to a feeder canal of about 20 miles. The main canal will have a capacity of 18,600 cubic feet per second for the first 17 miles and 14,500 cubic feet per second thereafter. The feeder canal will have a capacity of 4,100 cubic feet per second. The canals together will involve approximately 93 million cubic yards of excavation, nearly half of which will be wet, and the construction of some 100 structures such as regulators, bridges, aqueducts and siphons.

The next canal to be constructed in the same area will be the Rasul-Qadirabad Link Canal which will extend from Rasul on the Jhelum River to Qadirabad on the Chenab River. This Link will have a capacity of 19,000 cubic feet per second throughout and a length of about 28 miles. Its construction will involve approximately 40 million cubic yards of excavation, over half of which will be wet, and the construction of some 35 structures such as regulators, bridges, aqueducts and siphons.

The Authority plans to call for tenders for the construction of the Qadirabad-Balloki Link in the Spring of 1962 and for the construction of Rasul-Qadirabad Link in the Autumn of 1962. Only contractors who have been prequalified by the Authority will be invited to submit tenders. For this purpose, the Contractors who wish their names to be included on a list to receive the document for prequalification are requested to submit the following information on or before 15 December 1961 to the Authority's Consultants, Tipton and Kalmbach, Inc., at **Post Office Box 589, Lahore, West Pakistan,** with a copy to their office at **831 - 14th Street, Denver 2, Colorado, U.S.A.:**

1. Name of Company or Firm with full address
2. Name and title of person to whom future correspondence should be directed.

The interested contractors will then be furnished with a document describing the work and setting forth the information required from them by the Authority in order to evaluate their qualifications for undertaking the proposed canal construction.

Project Director (Links)

**WEST PAKISTAN WATER AND POWER
DEVELOPMENT AUTHORITY**

Bids: November 2, 1961

New York State Road Work
Interstate Routes 570 & 571

STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.—Pursuant to the provisions of Highway Law, sealed proposals will be received until 10:30 a.m., Eastern Standard Time, on November 2, 1961, by Henry A. Cohen, Director, Bureau of Contracts, 12th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y., for:

SOIL EXPLORATIONS AND FOUNDATION INVESTIGATIONS AT VARIOUS SITES ON INTERSTATE ROUTE 570, ERICKSON STREET TO EAST SYRACUSE, NEW PROJECT NO. 1-690-3(1)214 AND INTERSTATE ROUTE 571, DeWITT TO COLLAMER, NEW PROJECT NO. 1-281-2(50)84, ONONDAGA COUNTY, WHICH CONSTITUTES CONTRACT SPEC. NO. FA-SM-187.

Maps, plans and specifications may be examined and obtained at the following offices:

(a) Bureau of Contracts, 12th Floor, The Governor Alfred E. Smith State Office Building, Albany 1, New York.
(b) Mr. Earle E. Towlson, District Engineer, New York State Department of Public Works, 333 East Washington Street, Syracuse, New York.
(c) Mr. William Mende, Principal Building Construction Engineer, Department of Public Works, 270 Broadway, New York City.

The deposit for a set of plans, specifications and proposal forms is $5.00. Refunds of deposits for plans, specifications and proposals will be made only in case the deposits of individual sets are $10.00 or more, per Chapter 835, Laws of 1960.

The Engineer's Estimate of cost for this work is $42,625.00.

Proposal for this contract must be submitted in separate sealed envelope with the name of the contract plainly endorsed on the outside of the envelope. Proposal must be accompanied by draft or certified check, payable to the order of the "State of New York, Department of Public Works" for the sum of $2,250.00. The retention and disposal of the bidding check, the execution of the contract and bonds shall conform to the provisions of the Highway Law as set forth in "Instruction to Bidders".

The right is reserved to reject any or all bids.

J. BURCH McMORRAN
SUPERINTENDENT OF PUBLIC WORKS

Bids: November 1, 1961

Triborough Bridge and Tunnel Authority

SEALED BIDS WILL BE RECEIVED BY Triborough Bridge and Tunnel Authority at its office, Administration Building, Randall's Island, Manhattan, New York 35, New York, as follows:

Until 11 A.M. Wednesday, November 1, 1961

For Narrows Bridge Contract No. NB-11, Staten Island Approach and Plaza, Staten Island, New York City. The bid must be accompanied by a deposit in the amount of $250,000.00.

The contract includes grading, drainage, concrete and steel structures and paving.

Plans, specifications and contract documents may be purchased at the office of the Authority for $100.00 which will not be refunded.

EMPLOYMENT NATIONAL COVERAGE OPPORTUNITIES

DISPLAYED RATE

The advertising rate is $45.20 per inch for all advertising appearing on other than a contract basis. Frequency rates quoted on request.

An advertising inch is measured 7/8" vertically on a column—3 columns—30 inches to a page.

Subject to Agency Commission.

NOVEMBER 2ND
ISSUE
CLOSES
OCTOBER 23RD

UNDISPLAYED RATE

$2.70 per line, minimum 3 lines. To figure advance payment count 5 average words as a line.

Position Wanted ads take 1/2 of above rate.

Box numbers—count as 1 line.

Discount of 10% if full payment is made in advance for 4 consecutive insertions.

Not subject to agency Commission.

Send NEW Ads and Inquiries to Classified Advertising Division of ENGINEERING NEWS-RECORD, P. O. Box 12, N. Y. 36

ADDRESS BOX NO. REPLIES TO: Box No.
Classified Adv. Div. of this publication.
Send to office nearest you.
NEW YORK 36: P. O. Box 12
CHICAGO 11: 645 N. Michigan Ave.
SAN FRANCISCO 11: 255 California St.

• POSITIONS VACANT

Graduate Engineer with at least 1 year experience in electronic computer programming and/or application for Computer Section of large consulting engineering firm presently using Bendix G-15 Computer. Permanent employment with liberal benefit program. Reply with resume to Stanley Engineering Company, Muscatine, Iowa.

Estimator, Construction: Must be thoroughly experienced in quantity survey work for commercial and government buildings. Pricing knowledge not required. Good opportunity with progressive expanding organization. Forward qualifications and references to: Blake Construction Co., Inc., 1120 Connecticut Avenue, N. W., Washington, D. C.

Wanted—Civil Engineer—Capable of designing storm sewers, paving, planning, inspection and miscellaneous other county work. Minimum 5 years experience in county highway or municipal work. College graduate or equivalent. Send resume and state salary required. Apply—Personnel Assistant, Anne Arundel County Commissioners Courthouse, Annapolis, Maryland.

Civil Engineer, minimum three years experience in municipal engineering and general civil engineering. For a position with municipal public agency. Desire some structural background. Salary to $8,300. Location Southern New England. Submit resume to P-7600, Engineering News-Record.

Field Engineer — Permanent position with established Midwest consulting firm for man thoroughly qualified and experienced in all branches of building construction. Moving expenses paid. Electrical or process engineer preferred. Send complete resume to P-7633, Engineering News-Record.

Guard Rail Superintendent. Must be familiar with all phases of guard rail construction and be able to procure and train capable foremen and operators. Send complete resume including salary requirements to P-7614, Engineering News-Record.

Assistant Supt. Public Works—Town of Lexington, Mass., pop. 28,000, C.E. exper. including municipal public works water and sewer systems. Starting salary $6500. Apply Supt. Public Works, Town Offices, Lexington, Mass.

Highway Engineer — Automobile Club of Southern California, Los Angeles. U. S. citizen. Registered C.E. with experience in street, road or highway engineering. Under 40. Salary open—depending on experience. Promote improved street and highway transportation at all levels of government. Support and serve in advisory capacity to traffic and highway agencies. Participate in broad variety of related activities involving urban transportation, freeway design and operation, highway financing and legislation, report writing, speaking engagements, committee and professional society work. Some research. Professional advancement. Apply: John W. McDonald, Director of Engineering, 2601 S. Figueroa Street, Los Angeles 54.

Highway Engineers—Upstate N. Y. Consulting Engineer seeks Senior Engineer with B.S.C.E., min. 5 yrs. exp. including supervision at project level; and Junior Engineers with B.S.C.E. or equivalent and 2 yrs. experience in design of Interstate projects. Permanent position, excellent benefits. Send complete resume and salary requirements to P-7640, Engineering News-Record.

POSITIONS VACANT

Sanitary Engineer—Opportunity to develop sanitary div. for long est. 100 man engr. firm incl. promotion, client relations and direction of design and constr. H. W. Lochner, 20 North Wacker Dr., Chicago, Ill.

Civil Engineer, min. 5 yrs irrigation and/or hydroelectric experience. Overseas assignment with expanding consulting firm. Send resume and salary desired. P-7577, Engineering News-Record.

Registered structural engineer for national structural steel fabricating firm located in Southern California. Permanent position with good possibility of advancement. Send resume, salary expected, references and availability to P-7511, Engineering News-Record.

Process Piping Engineer for full or part time work. Telephone—CO 2-5005 Paramus, New Jersey.

Estimator — Experienced for general contractor specializing in commercial, light-heavy industrial construction. Please send resume, photo and vital statistics—Location Mid-South—salary and percentage. All replies confidential. P-7656, Engineering News-Record.

Pipe fitter foreman. Experienced in Steam and Air Conditioning Piping. Metropolitan N. Y. area. P-7642, Engineering News-Record.

Civil Engineer, specialist in hot-mix asphalt paving practice—mix design, control at plant and field. Please give full details. Salary open. Permanent. P-7660, Engineering News-Record.

Engineer of Public Works for City of Huntsville, Alabama. Experience required in municipal or related work. Registration required State of Alabama. Reply to Councilman C. H. Cummings, Jr., P.O. Box 57, Huntsville, Alabama.

Assistant City Engineer—Prepares plans and specifications for city projects and supervises construction valued at $3 million per year. Helps supervise 15 man engineering staff. Experienced in responsible major civil engineering work and eligible for Wisconsin P.E. Contact Personnel Department, Room 17 City Hall, Kenosha, Wisconsin.

Wanted: Expert Tunnel Supt. Give qualifications and references. P-7650, Engineering News-Record.

Permanent openings for young Graduate Civil Engineers with Materials Department of a Midwestern State Highway Commission. Reply P-7667, Engineering News-Record.

Accountant Auditor, private. Thorough construction experience. 200 miles from N.Y.C. P-7671, Engineering News-Record.

Draftsman—experienced structural steel detailer and checker. Permanent position with established consulting firm. Fringe benefits. Submit resume of experience, references and salary expected. Samborn, Steketee, Otis and Evans, Libbey-Owens-Ford Building, Toledo 2, Ohio.

Water Authority Manager—Man with experience in the administration of all phases of water system operation including the business office, as well as supply and distribution operations. Some engineering background and experience desirable. Salary $6,500 to $7,500. An excellent opportunity to become associated with an expanding Water Authority in one of the fastest growing sections of the Delaware Valley. Interview will be arranged on the basis of resume submitted. Write: North Wales Water Authority, 300 School Street, North Wales, Pa.

POSITIONS VACANT

Project Mechanical Engineer—Permanent— Licensed—For industrial plant mechanical design. Take charge of all mechanical work on specific projects: process air conditioning, process piping, plumbing, heating, ventilating, sprinklers. P-7666, Engineering News-Record.

Equipment Superintendent. All types heavy construction equipment. Full charge of supervising preventative maintenance and repair program. Large New York State road contractor. Forward resume of education, experience, qualifications and salary desired. P-7652, Engineering News-Record.

Highway Designers, Bridge Designers, Draftsmen—The Delaware State Highway Department has immediate openings for personnel fitting the above categories. Salary based on qualifications and experience. Send complete resume to: Personnel Director, Delaware State Highway Department, P. O. Box 151, Dover, Delaware.

Sr. Specifications Writer for N. Y. Consulting Engineering firm. Familiar with heavy construction and preparation of specifications for government projects. P-7643, Engineering News-Record.

Construction Superintendent wanted by general contractor in outstate Michigan. Must be well experienced on buildings in the 1-5 million dollar class. Give age, outline of experience and education, and salary expected. P-7662, Engineering News-Record.

• SELLING OPPORTUNITY AVAILABLE

Levelling Instrument—One Man Service. For builders, architects, road- and canal-builders and flooring-constructions also. This instrument is a best seller in Europe and we are looking for distributors or importers for the U.S.A. and Canada. RW-7680, Engineering News-Record.

EMPLOYMENT SERVICES

"NER" describes hundreds of $7,000-$35,000 Executive job openings monthly. Write for free copy. National Employment Reports, 105 W. Adams, 830-B, Chicago 3.

• POSITIONS WANTED

Construction Supt. Heavy Construction. PW-4182, Engineering News-Record.

(Continued on opposite page)

NOTICE to ADVERTISERS

Because of the Holiday, Election Day, November 7th, the "Searchlight" pages of the

November 9th Issue of

ENGINEERING NEWS-RECORD

Close for press earlier than the usual weekly closing time.

The cooperation of advertisers is solicited in forwarding new copy, or changes of copy, to reach us accordingly.

Display and Undisplayed Ads
FINAL CLOSING TIME
Friday, October 27th

PROPOSALS
Thursday, November 2nd

POSITIONS WANTED

(Continued from opposite page)

Construction Superintendent — 25 years experience, buildings, dams, airports, docks, steel mills, fuel storage tanks and pipe lines, including repair work, structural steel erection rigging, pile driving, forms, concrete. PW-7611, Engineering News-Record.

Engineer with proven construction management ability. Major experience in supervision lump sum government contracts to $10 million size. Missile base construction experience. Graduate PE. Age 36. PW-7610, Engineering News-Record.

Supt., Proj. Manager or Engineer—B.S. Degree — age 33 — 10 years experience all phases highway and bridge construction; design, soils analysis, testing, construction and administration. Domestic or overseas. PW-7621, Engineering News-Record.

Construction Superintendent—Project Manager. 25 yrs. experience all types construction. Complete job management. Available immediately. PW-7604, Engineering News-Record.

Construction Accountant. 15 years experience in every phase of Office Procedure. Presently employed as Secretary Treasurer of small construction firm. Available on reasonable notice. Age 36. PW-7555, Engineering News-Record.

Manager — Precast, prestressed concrete manufacturer. Experienced in production, sales, plant design, engineering, cost accounting. Construction background. PW-7557, Engineering News-Record.

Superintendent—30 years experience, desires steady employment. Thorough knowledge of heavy excavation projects. Also iron ore stripping and mining, coal mining and large solid rock excavations. Supervision and Maintenance of all types heavy construction equipment, project estimating; will accept position as Equipment Superintendent; finishing project soon, will accept position and go anywhere. PW-7533, Engineering News-Record.

Layout Eng. or party chief-clerk of works, will travel. Location immaterial—single. PO Box 949, Hollywood, Fla.

Chief Engineer available soon. Graduate and Registered with 14 years contractors experience in estimating and management of commercial, highway, and heavy construction. Resume sent upon request. PW-7581, Engineering News-Record.

Senior Civil Structural Engineer. Regist. in 8 states. Broad experience large bridges; industrial plants, commercial, instit. bldgs, etc. Handles multimill. dollar jobs from A to Z. Desires responsible position. PW-7513, Engineering News-Record.

Estimator and Construction Engineer, BSCE. 22 years experience in all phases of construction including 4 years mechanical. PW-7596, Engineering News-Record.

Construction Manager—General Superintendent—Aggressive administrator. Record of profit-making jobs with thorough background in all phases of construction. Write PW-7578, Engineering News-Record.

"Put Yourself in the Other Fellow's Place"

TO EMPLOYERS

TO EMPLOYEES

Letters written offering Employment or applying for same are written with the hope of satisfying a current need. An answer, regardless of whether it is favorable or not, is usually expected.

MR. EMPLOYER won't you remove the mystery about the status of an employee's application by acknowledging all applicants and not just the promising candidates.

Mr. EMPLOYEE you, too, can help by acknowledging applications and job offers. This would encourage more companies to answer position wanted ads in this section. We make this suggestion in a spirit of helpful cooperation between employers and employees.

This section will be more useful to all as a result of this consideration.

Classified Advertising Division

McGraw-Hill Publishing Co., Inc.
330 West 42nd St., New York 36, N. Y.

Pennsylvania's Long-Range Highways Expansion Program Offers Permanent Positions and Challenging Opportunities to

HIGHWAY DESIGNERS and MATERIALS ENGINEERS

Starting Salaries from $5,000 to $11,000.

• Growth Potential • Civil Service Security • Fringe Benefits

For Civil Service examination application write prior to October 27th to:

RECRUITMENT SECTION, ROOM #418, NORTH OFFICE BLDG.
PENNSYLVANIA DEPARTMENT OF HIGHWAYS, HARRISBURG, PA.

HEAVY CONSTRUCTION ESTIMATOR

Large Construction Co. in Seattle, Wash. seeking man to join estimating staff in Heavy Construction Div. Must be well qualified to assist in preparation of bids on multi-million dollar projects such as dams, power plants, tunnels, bridges and roads. Engineering background essential, field supervisory experience preferred. Send complete resume to

P-7624, Engineering News-Record
255 California St., San Francisco 11, Calif.

POSITIONS WANTED

Chf. Estimator—15 yrs. experience in Heavy Construction. BSCE, P.E. Roads, bridges, dams, airports, utilities. Metropolitan New York only. PW-7639, Engineering News-Record.

General superintendent or superintendent, will handle from bid to completion any kind of Bldg. Construction, anywhere. PW-7641, Engineering News-Record.

Senior Registered Civil Structural Engineer. Eleven years broad experience in plant engineering, preventive maintenance programs, industrial and communication structure design. Resume on request. PW-7674, Engineering News-Record.

Executive Hydraulic Dredge Civil Engineer desires connection with dredge firm or dredge owner. Full time, project or consultation basis. Over 25 years experience dredge management, field investigation, cost estimates. No family, location immaterial. PW-7657, Engineering News-Record.

Project-Manager Entire Supervision All branches of hvy const., estimates & methods, 22 yrs. exp. major projects U.S. & O.S. PW-7665, Engineering News-Record.

C.E., over 6 yrs. exp.: structural design, swrs & water lines, estimates, super. of construction, programming IBM-650. Available. Will relocate. J.S. 75-A Iozzia Ter. E. Paterson, N. J.

Reinforcing detailer with five years experience. One year of estimating. PW-7654, Engineering News-Record.

Civil Engineer, Registered, 33, married, employed—9 yrs industrial water engineering, hydrology, hydraulics, drainage, water treatment, waste disposal, water well drilling and testing, public relations, min. $10,500. PW-7664, Engineering News-Record.

Diligent, Aggressive Construction Super. Age 40, B.S.C.E., 13 yrs. all phases gen. const. including 7 yrs. foreign in S.A. and Orient. Seeks 2 yr. foreign assign. Prefer S.A. but consider other areas. Good Spanish. Resume on request. PW-7648, Engineering News-Record.

Construction Superintendent. 25 years experience in commercial, industrial and institutional work. Willing to relocate. PW-7653, Engineering News-Record.

Aggressive Project Manager with 15 years of international Constr. Management experience on Multi-Million Dollar Governmental Civilian Constr. Programs. Good negotiator. Able to form and operate domestic and foreign constr. co.; familiar with French, Italian, German, and Spanish. Seek position of vice president level with General Contractor to take charge of field operation abroad. Available January, 1962—Write P. O. Box 5573, Abilene, Texas.

Elderly Civil Engineer of Broad Experience in the design and construction of large concrete projects costing many millions. Desires connection as sales representative in the San Diego area. Well qualified. PW-7659, Engineering News-Record.

Powderman—Will Travel. Blasted for mines, sewers, and roads. PW-7670, Engineering News-Record.

Manager of Erection

Our client, a substantial world-wide manufacturer of steel building products, has an outstanding opportunity for a civil or mechanical engineer in the 35 to 48 age range whose experience includes two successful phases: (1) An impressive record as field superintendent in charge of the erection of structural steel, steel flooring, curtain wall or siding for *multi-story* buildings; and (2) The general management of a division or company profitably engaged in this type of construction.

This man will manage an autonomous erection division of about 300 men engaged year round on a number of concurrent projects located throughout the United States. His duties will encompass planning and policy formulation, customer service, erection methods improvements, coordination within the company as well as with outside firms and the assumption of full responsibility for profitable operation of the division.

Salary is somewhat flexible but first year earnings including an incentive, profit share and other benefits should total in the $20-$25,000 range. Reply in confidence and without obligation to Richard S. MacQuown, President.

TOMSETT ASSOCIATES, INC.
Management Personnel Counselors
431 Frick Bldg., Pgh. 19, Pa.

Highway and Bridge Engineers

Permanent positions available for graduate Civil Engineers with a minimum of five year's experience in Highway, Drainage, or Bridge Design.
Company benefits include hospitalization, insurance, sick leave and vacation.
Send complete resume, references and salary requirements to

RACKOFF ASSOCIATES
867 South James Road Columbus 13, Ohio

CIVIL ENGINEER II

Salary Range $5941
$7124 per annum

Graduation from a four year college or university with major course work in civil or structural engineering plus 2 years experience in structural engineering. Complete details by writing to Director of Personnel, Municipal Building, Hartford, Conn.

CHIEF HIGHWAY ENGINEER

Midwest Consultant is desirous of obtaining an experienced engineer capable of administering a staff of fifty. This is a permanent position with generous fringe benefits. Send resume and salary requirements to:

Box P-7627, Engineering News-Record
645 N. Michigan Ave., Chicago 11, Ill.

PILE DRIVING EQUIPMENT RENT OR SALE

DRIVING CAPS ▌STEEL SHEET PILING

DROP HAMMERS **▌HOISTS & DERRICKS**

VULCAN and McKIERNAN-TERRY
PILE HAMMERS and EXTRACTORS

BOILERS ▌*MANITOWOC CRANES*

CONMACO, INC.

• Kansas City, Kansas • 804 Kansas Avenue
Phone DRexel 1-3930
• Chicago, Illinois • 327 North Bell Avenue
Phone CHesapeake 3-9354

BUY SELL RENT
IN STOCK—DISMANTLED

TEMPORARY BRIDGE BEAMS

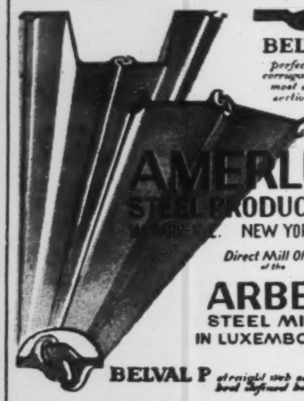
HEAVY—LONG OR SHORT SPANS

LEOPOLD COHEN IRON CO.
3000 S. KEDZIE CHICAGO 23, ILL. BI 7-6336

PILING

SURPLUS NEW and USED
For Sale, Wanted or Rent

STEEL SHEET PILING



BELVAL Z
perfect range of corrugated sections most economical section moduli

AMERLUX
STEEL PRODUCTS CO.
NEW YORK 17, N. Y.

Direct Mill Office of the

ARBED
STEEL MILLS
IN LUXEMBOURG

BELVAL P *straight web section best defined locking*

H & SHEET STEEL PILING

1400 PCS. BP8, BP10, BP12—BP14—55′ to 60′
3700 PCS. BETH. SP6A, 50′, 56′, 48′ & 40′ & 35′
1900 PCS. MP112—12′ 15′ 20′ 25′ 31′ 35′ & 60′
2800 PCS. BETH.—AP3 10, 15′, 20′, 25′, 30′ & 60′
2500 PCS. BETH.—DP2—20′, 25′, 30′, 35′, 40′, & 60′
1200 PCS. ZP38-ZP32—20′, 32′, 36′, 40′, 50′, 60′
600 PCS. ZP27—20′, 26′, 31′, 40′, 45′, 60′
500 PCS. 10′ & 15′ Corrugated Piling

PILING BOUGHT—SOLD—RENTED
STOCKS: N. Y.—BOSTON—BUFFALO
DETROIT—BALTIMORE—JACKSONVILLE
MIAMI—RICHMOND—NEW ORLEANS

DIESEL LOCOMOTIVES & CRANES

12—Gen. Elec. 100, 80, 70, 65, 45, 25 & 23 ton
40 Ton Amer. 60′ Boom Diesel Loco Crane
25 Ton Industrial Loco Crane 60′ Boom
690′ Chgo Pneu Elec. Air Comp. Type YCB 100 HP 440V Modern

R. C. STANHOPE, INC.
60 E. 42nd St. N. Y. 17, N. Y.
Telephone MU 2-3075 or MU 9-1898

PILING IN FLA. & LA.

650 pcs. Z-27, Z-32, Z-28
900 pcs. AP-3, DP-2—15′, 20′, 25′, 30′, 50′-60′
900 pcs. AP-3, DP-2—15′, 20′, 25′, 30′, 50′60′
500 pcs. H—10″—42 lb. 12″—53 lb. 14″—73 lb.
1200 pcs. MP-112—15′, 28′, 32′, 40′ & 60′
Link-Belt Diesel Pile Hammer Model 312

SEABOARD STEEL PILING—TEL. 958-0461
P. O. Box 5071—Sarasota, Fla.

1961 ML-309

LORAIN LOADER

3 cu. yd. Bucket
Used only 3 months

LIKE NEW

L. B. SMITH, INC.
Court Street Road
Syracuse 6, New York
HE 7-2611

FOR SALE

Like New at 50% of New Cost

VIBRO—TAMPER MODEL VT6-4

Complete with Inter. Harvester Mod. UD-350 Diesel Engine, 6 Vibrating Shoe Assemblies. 12′-6″ working width. Subject to prior sale. Call Bronx, N. Y. —Cypress 2-4800.

H. O. PENN MACHINERY COMPANY, Inc.
140th St. and East River
BRONX 54, NEW YORK

FOR SALE

25 yd. Bucyrus-Erie Electric Dragline

WILLIAM LUBRECHT, III
CONSTRUCTION EQUIPMENT
311 W. Diamond Ave., Hazleton, Pa.
Telephone Gladstone 5-4041—5-0253

EUCLID LOADER

9BV converted to larger 6-110 GM diesel and extended conveyor. Very good. Offered subject to prior sale or disposition

L. B. SMITH, INC.
Syracuse, New York Phone: HE 7-2611

DELONG AIRJACKS

For raising drilling platforms or drydocks. 72″ I.D. New surplus condition, complete. 40 available. Our price $2,500 each. New cost $25,000 each.

PHONE—NE 38027

MARINE EQUIPMENT CORPORATION
3060 N. W. North River Dr. Miami, Florida

---

8 Cu. Yd. CABLEWAY 100′ Head Mast, 40′ Traveling Tail Tower 3″ x 1850′ Roebling Lock Coil Main Cable. 500 H.P. Electric with all Controls and Accessories.

PACO
2911 E. Marginal Way South Seattle, Wash.

• BUSINESS OPPORTUNITY

Engineers and licensed land surveyors to form a firm in the southern part of Virginia. Small investment is necessary. BO-7672, Engineering News-Record, Classified Adv. Div., PO Box 12, New York 36, NY.

• FOR SALE

Light table, custom built. Fused glass top. Max. light. 52″w.x37″d.x34″h. Call N.Y.C. RA 8-7887.

CONSTRUCTION SUPERVISION

Exclusive Training Course by mail for top positions. Publishers Manual of Advanced Construction Management. Send postcard for details.

National Schools of Construction
Est. 1952
Satsuma, Florida

STRUCTURAL ENGINEERING
ARCHITECTURAL ENGINEERING

OUR COURSES of instruction by mail HAVE HELPED THOUSANDS to better positions and to pass State Board Examinations. Forty-eighth year.

WILSON *Engineering Corp.*
College House Offices HARVARD SQ CAMBRIDGE MASS.

STEAM ENGINE GENERATORS

Two 300 KW, 2300 Vlt.,
3 phase, Ridgeway—Elliott with
exciter sets and switchboard

KENWORTHY & TAYLOR, INC.
Everett, Massachusetts

FOR SALE

1—86FD Euclid Rear Dump
3—87FD Euclid Rear Dumps
2—91FDC " " "
8—71FDT Euclid Bottom Dump

In excellent condition

Location Boston Area

P. O. Box 89
Canton, Massachusetts

PUMPCRETE

Current Models Sale or Rent
Engineering Service & Parts
R. T. SHERROD
Concrete Equipment Company
12233 W. Fairview Ave. Milwaukee 13, Wis.

SURVEYING INSTRUMENTS

USED • REBUILT • SALE
RENT • REPAIRING

TRANSITS & LEVELS

Various Makes
NEW & REBUILT

Fully equipped modern shops — all makes and models repaired — all work guaranteed — prompt service — complete line field supplies.

INSTRUMENTS RENTED

Midwest Distributors for W. & L. E. Gurley and Wild Heerbrugg Instruments

NATIONAL BLUE PRINT CO.
Established 1914.
210 S. Canal St. Chicago (6), Ill.

SEARCHLIGHT SECTION CLASSIFIED ADVERTISING

BUSINESS OPPORTUNITIES - EQUIPMENT - USED or RESALE

DISPLAYED RATES

The advertising rate is $25.50 per inch for all advertising appearing on other than a contract basis. Contract rates quoted on request.

AN ADVERTISING INCH is measured 7/8 inch vert. on one col., 3 columns—30 in. to a page.

EQUIPMENT WANTED or FOR SALE ADVERTISEMENTS acceptable only in Displayed Style.

UNDISPLAYED RATES

$2.70 a line, min. 3 lines. To figure advance payment count 5 average words as a line.

BOX NUMBERS count as one additional line in undisplayed ads.

DISCOUNT OF 10% if full payment is made in advance for four consecutive insertions of undisplayed ads.

---

3 DRUM HOIST

New 3 drum hoist with swinger attached. Diesel power with torque converter. 18,000# line pull.

HAVRE DE GRACE SHIPYARD, INC.
Havre De Grace, Maryland

RAILS-TIES

TRACK ACCESSORIES

RAILS

MIDWEST STEEL CORP.
502 DRYDEN STREET
CHARLESTON, W. VA.

"SEARCHLIGHT" Can Help You!

Hundreds of miscellaneous business problems that confront you from time to time, can be solved through the use of the SEARCHLIGHT SECTION of ENGINEERING NEWS-RECORD.

When you want to buy or sell used or surplus new Construction equipment and/or accessories, or have other business wants—advertise them in the SEARCHLIGHT SECTION for quick, profitable results!

STEEL

FOR TEMPORARY USE

NOW YOU CAN RENT
STRUCTURAL BEAMS AND PLATES
FOR SHORING—RIGGING
OR
TEMPORARY INSTALLATIONS

THE BUNCHER COMPANY
835 Shore Ave., Pittsburgh 12, Penna.
FAirfax 1-4950

HEAVY EXCAVATION EQUIPMENT

LARGE DRAGLINES, SHOVELS, CRANES, ROTARY DRILLS, EUCLID DUMP TRUCKS

FRANK SWABB EQUIPMENT COMPANY, INC.
Hazleton National Bank Building, Hazleton Pa.
Phone GL 5-3658

For Sale: DRAGLINES—SHOVELS—CRANES
All makes and models, 1/2 yd. to 35 yd.
EUCLIDS: Rear, Bottom Dumps and Scrapers
Other equipment available not listed above
William Lubrecht, III Construction Equipment
311 W. Diamond Avenue, Hazleton, Pa.
Gladstone 5-4041 5-0253

18V PIONEER DUPLEX PORTABLE CRUSHING AND SCREENING PLANT

10″ x 24″ RB Jaw Crusher, 24″ x 16″ RB Roll Crusher, 30″ x 8′ 3½-Deck Screen, GMC diesel, pneumatic tires, excellent condition. New 1952.

DARIEN CORPORATION
60 E. 42nd St. New York, N. Y.
Telephone MU 2-0042 or MU 2-1898

For Sale:

PAVING TRAIN

Last used on 24′ pavement

1. Concrete Spreader — hydraulic operated — 36″ conveyor
2. Strike-Off Machine—Blaw Knox #6932
3. Mesh Bridge—hinged in middle for easy moving
4. Finishing Machine—Blaw Knox
5. Longitudinal Bull Float
6. Black Stripe Machine—Clinton air-cooled engine
7. Concrete Saw—Champion Model CS 3000 E
8. Concrete Saw—Champion Model 400
9. Motor Patrol—Cat Diesel Model 212
10. Sub-Grader—1″ to 10″ adjustable cutting blade
11. Pin Puller—Cleveland #175
12. Pin Driver—Schram #560-2090-60-3124
13. Roller—Buffalo Tandem 8 Ton #14272
14. Roller—Buffalo Tandem 10 Ton #18059

Also: Fuller-Kinyon 30 H.P. 6″ Type "C" Cement Unloader

Contact:

CONCRETE SUPPLY CO., INC.
James W. Hunt
P.O. Box 359, Louisville, Ky.
Telephone—MElrose 4-0505

EUCLID TWIN SCRAPER

1961 Model TS-14
Only 3 Months Use

LIKE NEW
LOW PRICE

L. B. SMITH, INC.
Court Street Road
Syracuse 6, New York
HE 7-2611

PIPE

SURPLUS NEW and USED **For Sale, Wanted or Rent**

STEEL PIPE *ALL SIZES ½″ TO 84″ O.D.*

Large Stocks—Low Prices

STEEL TUBING SQUARE and RECTANGULAR Sizes ½″ x ½″ x .049″ to 8″ x 8″ .500″ wall

Fast delivery anywhere—one piece or a carload

VALLEY STEEL PRODUCTS CO.
124 Sidney St. PRospect 3-3020 St. Louis 4, Mo.

Call: HYACINTH 7-4900

PIPE, VALVES & FITTINGS
PILING • CULVERTS
ASBESTOS-CEMENT PIPE • ALUMINUM PIPE

ap

ALBERT PIPE SUPPLY CO., Inc.
103 VARICK AVE., BROOKLYN 37, N.Y.

ASSOCIATED PIPE & FITTING CO., INC.

PILING PIPE SHELLS MANDREL FITTINGS

"H" BEARING PILE-POINTS AND SLEEVES

TIMBER SPLICERS AND SHOES

CULVERTS CIRCLE ARCH SECTIONAL

262 RUTHERFORD BLVD., CLIFTON, N.J. • PR 3-8400

PIPE—Reconditioned—For Sale

Structural steel pipe 1½″ thru 36″
Spiral Weld pipe 3″ thru 16″
W. F. Beams 8″ thru 36″
Speedy delivery. Courteous service.

BENSON - STEAD CO., INC.
P.O. Box 98 Portville, N. Y.
PH. XF3—6357

PROFESSIONAL SERVICES

NEW ENGLAND

Metcalf & Eddy
Engineers
Investigations • Reports
Planning • Siting • Design
Supervision of Construction & Operation
Valuations • Rates • Research
Management
1300 Statler Building, Boston Mass.

MIDDLE ATLANTIC

Baker-Wibberley & Associates, Inc.
Consulting Engineers
Civil, Sanitary, Structural.
Foundations, Soils
49 N. Jonathan St., Hagerstown, Md.
Baltimore, Md. Waynesboro, Pa.

Joseph S. Ward and Associates
Consulting Soil and Foundation Engineers

Site Investigation, Boring Supervision, Laboratory Soil Testing, Foundation and Pavement Analysis and Design, Construction Supervision, Engineering Reports and Consultation

91 Roseland Avenue Caldwell, N. J.
Jefferson Building Phila., Penna

Albert C. Jones Associates
Consulting Engineers
Private and Municipal Engineering
Sewerage-Sewage Treatment
Water Supply and Distribution
Investigations and Appraisals
Photogrammetric Engineering
Aerial Maps
223 High St. Mount Holly, New Jersey

Layne-New York Co., Inc.
Grouting • Core Drilling
Water Wells • Drilled Shafts
Test Borings • Water Treatment
150 Denton Ave., New Hyde Park, N.Y.
431 Market St., Camden, N. J.
1250 W. Elizabeth Ave., Linden, N. J.
15 Ryder St., Arlington, Mass.
5655 Bryant St., Pittsburgh 6, Pa.

Howard, Needles, Tammen & Bergendoff
Consulting Engineers
Bridges • Structures • Foundations
Admin. Ser. • Traffic & Parking •
Express Highways • Airports
Kansas City - Cleveland - New York

E. Lionel Pavlo
Consulting Engineer
Design, Supervision, Reports
Bridges, Highways, Expressways
Marine Structures, Public Works
Industrial Construction, Airports
642 Fifth Ave. New York 19, N. Y.

Severud-Elstad-Krueger-Associates
Consulting Engineers
Structural Design - Supervision
Reports - Buildings - Airports
Special Structures
415 Lexington Ave., New York 17, N.Y.

Steinman, Boynton, Gronquist & London
Consulting Engineers
HIGHWAYS - BRIDGES
STRUCTURES
117 Liberty St., New York 6, N. Y.

Lockwood, Kessler & Bartlett, Inc.
Consulting Engineers

Civil Engineering Investigations and Reports, Design and Construction Supervision of Bridges, Highways, Pipelines, Expressways, Industrial Buildings, Sewerage, Airports and Municipal Improvements, General Site Engineering, Seismic Subsurface Investigation, Cadastral, Geodetic & Topographic Surveys, Photogrammetric Engineering & Mapping.

One Aerial Way, Syosset, New York
Bogota, Colombia San Juan, P. R.

Modjeski and Masters
Consulting Engineers
Bridges and other Structures
Foundations
Highway and Expressways
900 North Sixth St. Harrisburg, Pa.
Philadelphia - Miami - New Orleans

Michael Baker, Jr., Inc.

Consulting Engineers, Planners & Surveyors. Airport, Highway & Bridge Design; Water & Sewerage; Municipal Engineering; Photo Mapping; City Planning urban Ren. & Dedev. Surveys; Soils Lab. Home Office—Rochester, Pa. Br. Off. Jackson, Miss. Charleston, W. Va., Harrisburg, Pa.

Buchart-Horn
(Buchart Engineering)
Consulting Engineers
Highways — Bridges — Sewer Systems
Surveys — Water Works — Dams —
Municipal - City Planning - Structures
55 S. Richland Ave., York, Pa.
Lancaster, Pa. Washington, D. C.

Sprague & Henwood, Inc.
Drilling Services

Foundation Investigations, Soil Testing & Test Borings, Grout Hole Drilling & Pressure Grouting. Diamond Core Drilling

Main Office
221 W Olive Street, Scranton, Pa.
Branches:
1009 Western Savings Fund Bldg., Philadelphia, Pa.
11 W. 42nd St., New York, New York
300 Mt. Lebanon Blvd., Suite 100 Pittsburgh 34, Pa.
Box 2556—Salt Lake City, Utah
Nashville, Tennessee
Tucson, Arizona
Buchans, Newfoundland

SOUTH

Rader and Associates
Engineers - Architects

Sewage Disposal, Water Works, Ports, Airports, Bridges, Highways, Office and Commercial Buildings, Industrial Plants, Reports, Investigations, Consultations, Aerial Photography, Photogrammetry.

First Nat'l Bank Bldg., Miami 32, Fla.

MIDDLE WEST

Sargent & Lundy
ENGINEERS
Consultants to the Power Industry
Studies • Design • Supervision
140 South Dearborn Street,
Chicago 3, Ill.

Consoer, Townsend & Associates
Consulting Engineers

Sewage treatment, sewers, storm drainage, flood control—Water supply and treatment—Highway and bridges—Airports—Urban renewal—Electric and gas transmission lines—Rate studies, surveys and valuations—Industrial and institutional buildings.

360 East Grand Ave. Chicago 11, Ill.

Toledo Testing Laboratory
Engineers—Chemists
Concrete—Soils—Asphalt
Inspection Research
Tests Development
Foundation Investigation
Borings — Diamond Drilling — Load Tests
Soils Mechanics Laboratory
1810 North 12th St. Toledo 2, Ohio

AERIAL SURVEYS

American Air Surveys, Inc.
AERIAL TOPOGRAPHIC MAPS & AERIAL PHOTOS FOR
• Highways • Airports • Power & Pipe Lines • Railroads • Mining • All types construction • Stockpile Inventories
907 Penn Ave. Pittsburgh 22, Pa
Branches-Manhasset, N.Y.-Atlanta, Ga

THIS SECTION
Is available to consulting engineers to contact prospective clients every week or every other week.

CONSULT THESE SPECIALISTS . . .

when you need professional assistance in solving difficult problems. Their specialized knowledge and broad experience can prove invaluable in saving both time and money for you.

Engineering News-Record invites other consultants to list the special services they offer on these pages. Rates for the Professional Services section are:

PER WEEK

	13 times	26 times	52 times
3/4"	—$14.35	$13.35	$12.45
1½"	—$23.85	$22.30	$21.00

Minimum order 13 insertions.

SEARCHLIGHT Equipment Locating Service

This service is aimed at helping you, the reader of "SEARCHLIGHT", to locate Surplus new and used Engineering and Construction equipment not currently advertised. (This service is for USER-BUYERS only). No charge or obligation.

How to use: Check the dealer ads on pages 136, 137 to see if what you want is not currently advertised. If not, send us the specifications of the equipment wanted on the coupon below, or on your own company letterhead to:

Searchlight Equipment Locating Service
Classified Advertising
c/o ENGINEERING NEWS-RECORD
P.O. Box 12, New York 36, New York

Your requirements will be brought promptly to the attention of the equipment dealers advertising in this section. You will receive replies directly from them.

Searchlight Equipment Locating Service
Classified Advertising
c/o ENGINEERING NEWS-RECORD
P.O. Box 12, New York 36, N. Y

Please help us locate the following equipment:..

....

Name .... **Title** ....

Company .... **Street** ....

City .... Zone.... State.................. 10/19/61

CLASSIFIED ADVERTISING INDEX

Albert Pipe Supply Co. 137
Amerlux Steel Products Co. 136
Associated Pipe & Fitting Co., Inc. 137
Benson-Stead Co. 137
Boers Equipment Co., Gil 137
Buncher Company 137
Cohen Iron Co., Leopold 136
Concrete Equipment Co. 136
Concrete Supply Co., Inc. 137
Conmaco, Inc. 136
Darien Corporation 137
Hartford, Connecticut, City of 135
Havre De Grace Shipyard Inc. 137
Kenworthy & Taylor Co. 136
Lubrecht III, William 136, 137
Marine Equipment Corporation 136
Midwest Steel Corp. 137
National Blue Print Co. 136
National Schools of Construction 136
PACO 136
Penn Machinery Corp., H. O. 136
Pennsylvania Department of Highways 135
Rackoff Associates 135
Seaboard Steel Piling 136
Smith Inc., L. B. 136, 137
Stanhope Inc., R. C. 136
Swabb Equipment Co., Inc., Frank ... 137
Tomsett Associates Inc. 135
Valley Steel Products Co. 137
Wilson Engineering Corporation 136

ADVERTISERS IN THIS ISSUE

Air Placement Equipment Company 42
Allis-Chalmers 127
Allison Div., General Motors Corp. 8-9
Alpha Portland Cement Company 128
Aluminum Company of America 17; 88-89
American Cyanimid Company 87
American Steel & Wire Div.,
  United States Steel Corp. 4-5

Barco Manufacturing Company 95
Bethlehem Steel Co. 84
Borden Metal Products Co. 24
Broderick & Bascom Rope Co. 4th Cov.

Cast Iron Pipe Research Association 56-57
Caterpillar Tractor Co. 65-72
Caterpillar Tractor Co., Engine Div. 122
The Celotex Corp. 12
Chevrolet Division,
  General Motors Corp. 97-108
Chicago Pneumatic Tool Company 82-83
Crane Co. 14

Davey Compressor Co. 50
Diamond Chain Company, Inc. 22
Dodge Manufacturing Corporation 90

Elgood Equipment Corp. 85
Engelhard Hanovia, Inc.,
  Industrial Diamond Division 117

Fireman's Fund Insurance Company 64

Gardner-Denver Company 48
The Geodimeter Co. 60
Gunite Concrete & Construction Co. 80

Harnischfeger Corporation 2nd Cov.
Homelite Div., Textron Inc. 58-59
Hose-McCann Telephone Co., Inc. 64
Humble Oil & Refining Company 7

Ingersoll-Rand Company 124
Inland Steel Company 110-111
The International Nickel Company, Inc. 61
Irving Subway Grating Co., Inc. 86

Johns-Manville Corp. 18-19; 79

Kaiser Aluminum & Chemical Corp. 3rd Cov.
The Kinnear Mfg. Co. 50
Klemp Corporation 16

Leschen Wire Rope Div.,
  H. K. Porter Co., Inc. 81
The Levison Steel Company 20
Lincoln Engineering Co. 55
Lock Joint Pipe Co. 15
Ludlow Corporation 13
The Lufkin Rule Company 112

Mack Trucks, Inc. 46-47

National Clay Pipe Manufacturers, Inc. 116
Naylor Pipe Company 77
Newport News Shipbuilding & Dry Dock Co. 45

The Owen Bucket Co. 113

Phoenix Bridge Company 85
Pittsburgh Plate Glass Co.,
  Chemical Div. 80
Pittsburgh Steel Products Div. 74-75
Posey Iron Works, Inc. 16
The Preload Company, Inc. 51

Reda Pump Company 109
Richmond Screw Anchor Co., Inc. 2
Rockwell-Standard Corp., Grating Div. 115
John A. Roebling's Sons Division,
  The Colorado Fuel and Iron Corporation 92
Russell, Burdsall & Ward Bolt & Nut Co. 63

Sauerman Bros., Inc. 129
Servicised Products Corp. 54
Spencer, White & Prentis, Inc. 73
Stacor Equipment Corp. 16
John W. Stang Corp. 3
Superior Scaffold Co. 6
Symons Clamp & Mfg. Co. 42

Templeton, Kenly & Co. 80
E. A. Thompson Co., Inc. 91
The Travelers Insurance Co. 1
Tube Turns Division of
  Chemetron Corp. 10-11

U. S. Steel Corp. 37-40

Waljohn Waterstop, Inc. 118
Waukesha Motor Co. 62
Weil Pump Company 96
The Weinman Pump Mfg. Co. 78
Wheeling Corrugating Co. 52-53
Wisconsin Motor Corporation 85

Yeomans Brothers Co. 43

Professional Services 138

CLASSIFIED ADVERTISING

F. J. Eberle, Business Mgr.

Employment Opportunities 134, 135
Notices
  Proposals 131-133
Equipment
  (Used or Surplus)
  (For Rent, Sales Wanted) 136, 137
Advertisers' Index 138

ENGINEERING NEWS-RECORD

330 West 42 St., New York 36—LOngacre 4-3000

Member

Number of copies of this issue printed 88,047

D. S. ROBERTSON, Advertising Sales Manager
HUGH J. CARLSON, Business Manager
LANG CARPENTIER, Production Manager
JACK NEVINS, Assistant Production Manager

ADVERTISING REPRESENTATIVES

Atlanta, 9—1375 Peachtree St., N.E.,
Robert H. Powell, Jr.

Boston, 16—McGraw-Hill Bldg., Copley Square
C. D. Neulen

Chicago 11—645 North Michigan Ave.
L. H. Hunt, W. G. Payne

Cleveland, 13—1164 Illuminating Bldg.,
55 Public Square
H. A. Bergstrom, F. P. DiToro

Dallas, 1—Vaughn Bldg., 1712 Commerce St.,
John Grant

Denver, 2—Tower Building, 1700 Broadway
J. W. Patten

Detroit, 26—856 Penobscot Bldg.
Earl S. Moore, Jr.

Houston, 25—Prudential Bldg.,
Holcombe Blvd.—Joseph C. Page

Los Angeles, 17—1125 W. Sixth St.,
Knox Bourne, S. S. Tiebout

New York, 36—500 5th Ave.
C. D. Neulen, H. T. Olsen
Robert L. Barker

Philadelphia, 3—Six Penn Center Plaza
George K. Smith
Patrick Keleher

Pittsburgh, 22—4 Gateway Center
Malcolm Russell

Portland 4, Oregon—Room 445, Pacific Bldg.
Scott Hubbard

St. Louis, 8—Continental Bldg., 3815 Olive St.
E. B. Mingle, Jr.

San Francisco 11—255 California St.
John J. Hernan

OTHER SALES OFFICES:

United Kingdom, Edwin E. Murphy, 34 Dover Street, London W.1—Germany, Austria, Stan Kimes, 85 Westendstrasse, Frankfort/Main, Germany—Switzerland, Italy, France and Belgium, Michael R. Zeynel, 2 Place du Port, Geneva, Switzerland

---

CONSTRUCTION BUSINESS NEWS . . . streamlined . . . highlighted . . .

for

TOP MANAGEMENT

- **capsule, synopsis reporting**
- **fast—2-level reading**
- **supporting detail—for convenient routing to department heads and specialists**

New business coming up . . . price and cost movements . . . labor relations . . . construction business outlook . . . special situations . . . where the construction dollars are going . . . where they are coming from . . . foreign jobs . . . Government actions affecting construction . . . spot industry news . . . major project reports

See for yourself how easy it is to keep ahead of the news with

CONSTRUCTION DAILY . . . NEWSLETTER

A McGraw-Hill Service

A 3-month test offer

You can test the special benefits to you for three months at the quarterly rate of $50.

A bonus for starting now:

You get a two weeks (ten issues) service at no additional cost by entering your 3-months subscription this month.

Be first to know what is happening, start your CONSTRUCTION DAILY NEWSLETTER Service NOW:

CONSTRUCTION DAILY
28th Floor—330 West 42nd St.,
New York 36, N. Y.

O.K.—Enter a three-month trial subscription to CONSTRUCTION DAILY NEWSLETTER at a cost of only $50.00 (this offer includes free copies for an additional 10 issues if order is mailed within two weeks). This offer covers daily copies of the NEWSLETTER—sent by 1st class mail. Or, if you prefer a year at $155, check here ☐

☐ Payment enclosed

Name .... **Position**......
Address ....
Postal
City........... **Zone**.... **State**......
Name of Company...................
Type of Business....................
ENR-T4

Editorials

Prestressed Structural Steel:

New Tool for Cost Cutters

EXCITING VISTAS are opened up by recent applications of the prestressing principle to structural steel. Made possible by the availability of relatively inexpensive high-strength steels, these pioneering structures point the way to longer spans at less cost.

As pointed out by T. R. Higgins, director of engineering and research, American Institute of Steel Construction, at the Second Industrial Building Exposition and Congress, prestressing "makes steel work harder per pound of weight and per dollar of fabricating cost" (ENR Oct. 5, p. 24). Prestressing requires imposition during fabrication or erection of stresses that counteract those produced by loads. For economy, the basic structural member usually is made of ordinary steel, and the prestress is applied by relatively inexpensive high-strength steel.

The prestressed steel bridge described on p. 32 is an intriguing example. Cover plates with a yield point of 100,000 psi were welded to deflected beams made of steel with only a 36,000-psi yield point. This technique built in tensile stresses where loads will create compression, and compressive stresses where loads will produce tension. The result was a 25% saving in weight. Commensurate cost savings were not realized because this was a pioneering structure on which design and fabricating costs were greater than they otherwise would have been.

In other recent structures, including several spectacular buildings, prestress has been applied with steel cables or bars. Here, in contrast to the Iowa bridge, the prestressing was done in the field.

Many proposals have been made in recent years for strengthening older bridges by prestressing, but if this method has actually been used it has not been publicized. Tendons along the bottom flange of a simply supported girder bridge or the bottom chord of a truss can increase live-load carrying capacity at relatively low cost, with no changes in the depth of girder or truss. Thus, prestressing can extend the useful life of structures that would otherwise be outmoded by increases in permissible highway loads.

Consideration may also be given to applying the prestressing principle to columns as well as to flexural members. By relieving columns of bending stresses produced by lateral forces and by reducing compressive stresses, thus in this way increasing the reserve against buckling, prestressing may yield substantial material and cost savings.

John A. Roebling's Sons Co. used a variation of this technique for a footbridge over the Delaware (ENR Feb. 26, 1948, p. 319) and a suspension bridge in San Salvador (ENR May 21, 1953, p. 32). These structures contain trusses in which pretensioned cables carry compressive forces though net stresses remain tensile.

There is, of course, the danger that increases in fabrication or erection costs may offset savings in steel achieved with prestressing. Hence, whether beams, trusses or columns are to be prestressed, the technique to be employed must be low cost.

With this precaution, with ordinary design skill, use of accepted design principles and employment of good engineering judgment, prestressed steel can be used safely and economically for framing all types of structures. It is a welcome addition to the designer's tool kit, as a new way to cut steel cost.

Industrial Buildings:

In a Class by Themselves

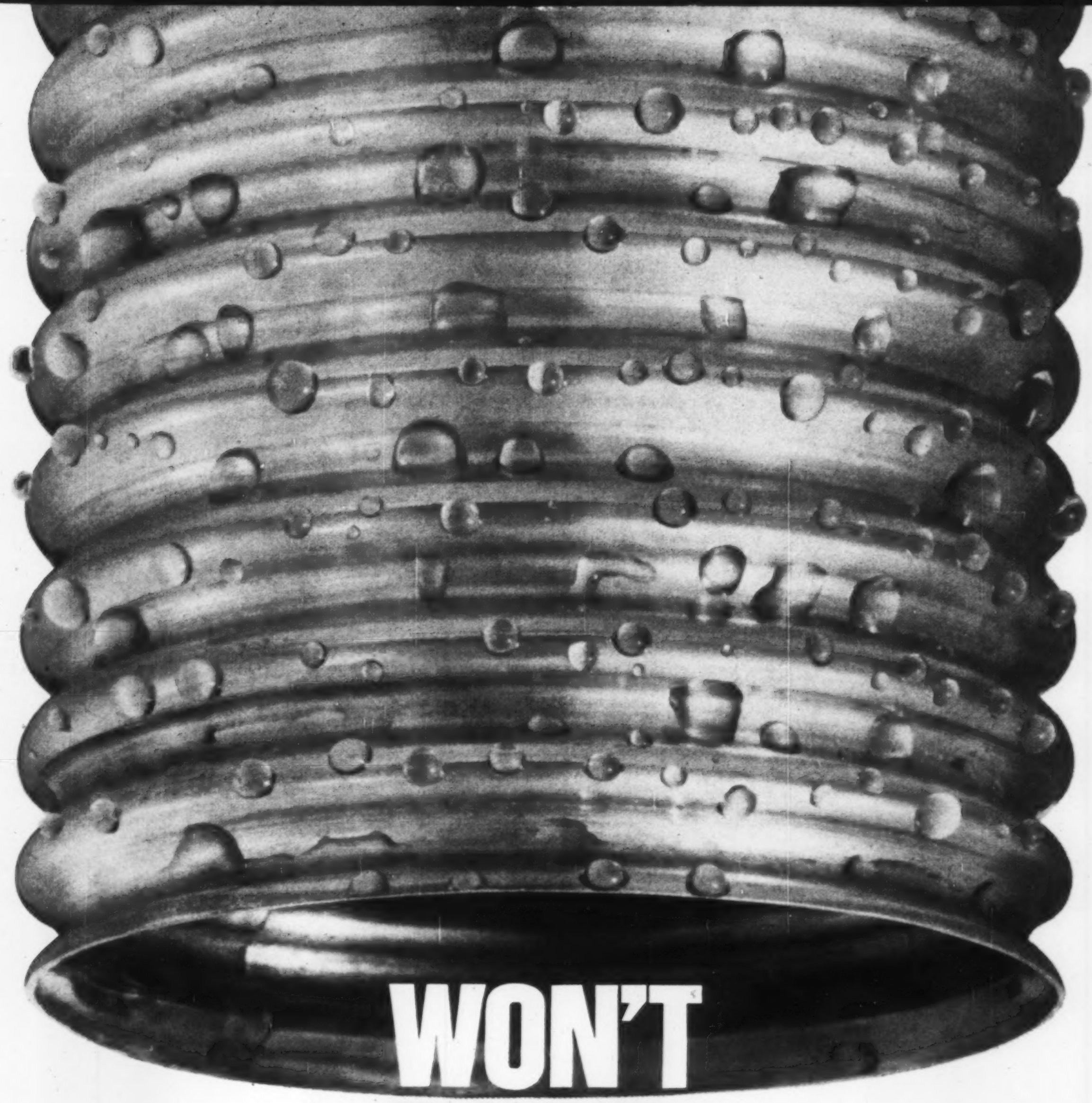
SUCCESSFUL CONCLUSION of the Second Industrial Building Exposition and Congress in New York City two weeks ago conjures up thoughts on the remarkable changes that have occurred in the requirements for our so-called industrial structures.

Once upon a time the term "mill building" pretty well described an industrial building. It meant a structure of relatively wide bays (often only one), spanned by roof trusses, and it was regarded as a great advance over the short-bay buildings of post-and-beam construction of an even earlier era. Electrical and mechanical facilities were at a minimum, and structural designers seldom had a more onerous or challenging duty to perform than to decide whether the trusses should be Fink, fan, Pratt or Warren.

Today, industrial buildings are among the most sophisticated of structures, encompassing arches, rigid frames and cantilevers, as well as trusses. They are roofed over with curved surfaces and enclosed in walls chosen from an abundance of modern materials. They are filled with intricate systems of conveyors, piping, electrical wiring and air conduits. And they must be as architecturally presentable as any building in town.

Nor is the modern industrial building different only from its ancestors. It is wholly different from such relatives as the office building, the store, hospital, school or public building. And as such it needs to have special planning, design and construction techniques applied to its creation.

The modern industrial building is a separate class of structure, much as dams and bridges are separate classes. It is perhaps a reflection of this fact, and heartening, too, that a special exposition and congress devoted solely to industrial buildings could be organized and attract as many as 2,800 interested engineers, architects, contractors and industrial executives to its exhibits and sessions. It is a good omen for the future of this special class of structure.



WON'T RUST!

Because it's aluminum . . . Kaiser Aluminum! And that means corrosion protection as thick as the metal itself. This is one metal culvert that has no dipped coating to be nicked or scratched away from runoff abrasion . . . abrasion that can lead to rust and costly replacement. Culvert of Kaiser Aluminum is easy to install because it's light weight . . . ⅓ that of steel . . . yet is engineered for your strength requirements. Can cut job cost up to 20%! Culvert of Kaiser Aluminum is now available nation-wide in a full range of sizes. Send for a detailed brochure with all the facts and the name of your nearest supplier.

SEE MAVERICK AND FOLLOW THE SUN WEEKLY, ABC-TV NETWORK

KAISER ALUMINUM

KAISER ALUMINUM &
CHEMICAL CORPORATION
★ 840 KAISER CENTER ★
OAKLAND 12, CALIF.

Send me a copy of "ALUMINUM CULVERTS—TECHNICAL INFORMATION"

Name

Firm or Office

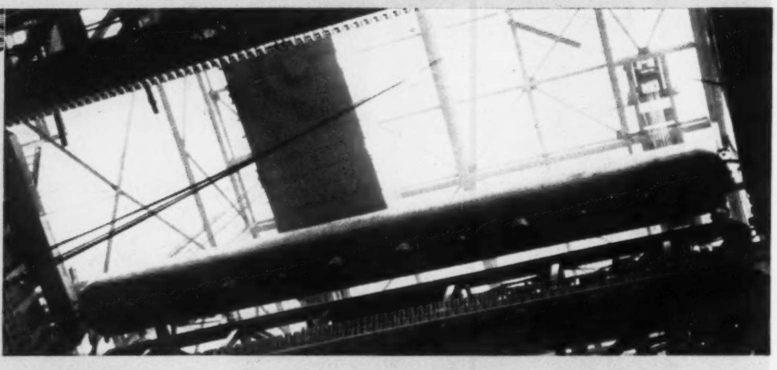
Address

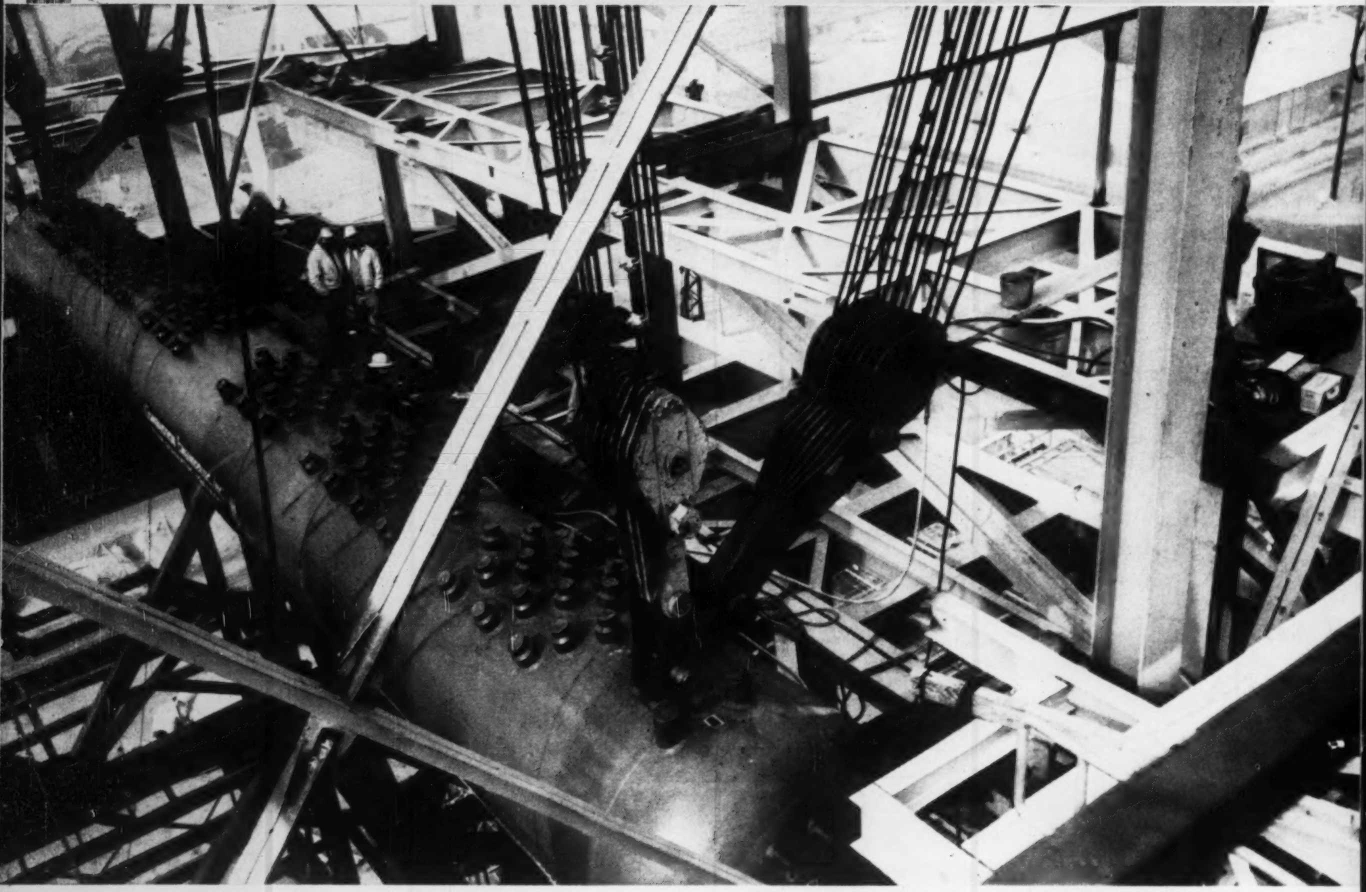
City Zone State

☐ Check here if you would like the name of your nearest supplier.

YELLOW STRAND HOLDS DOWN COSTS

lifting a 150-ton Boiler Drum with no margin for error





Scenes of the lifting operation at Alamitos, east of Long Beach, Calif.

Combustion Engineering depends on YELLOW STRAND for 112-foot precision lift at Alamitos Plant

Pulling a 150-ton boiler steam drum up some ten stories with just 1½ inch clearance on either side calls for dependable equipment. Faced with such a task at the Alamitos Steam Station of the Southern California Edison Co., Combustion Engineering Company chose Yellow Strand wire rope and clips. Dependable is the word for Yellow Strand–consistent in strength and durability. Test Yellow Strand yourself. Call your Yellow Strand distributor or representative anytime.

Yellow Strand®
WIRE ROPE

BRODERICK & BASCOM ROPE CO.
ST. LOUIS • PEORIA • HOUSTON • SEATTLE